WESTERN GAS

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1926

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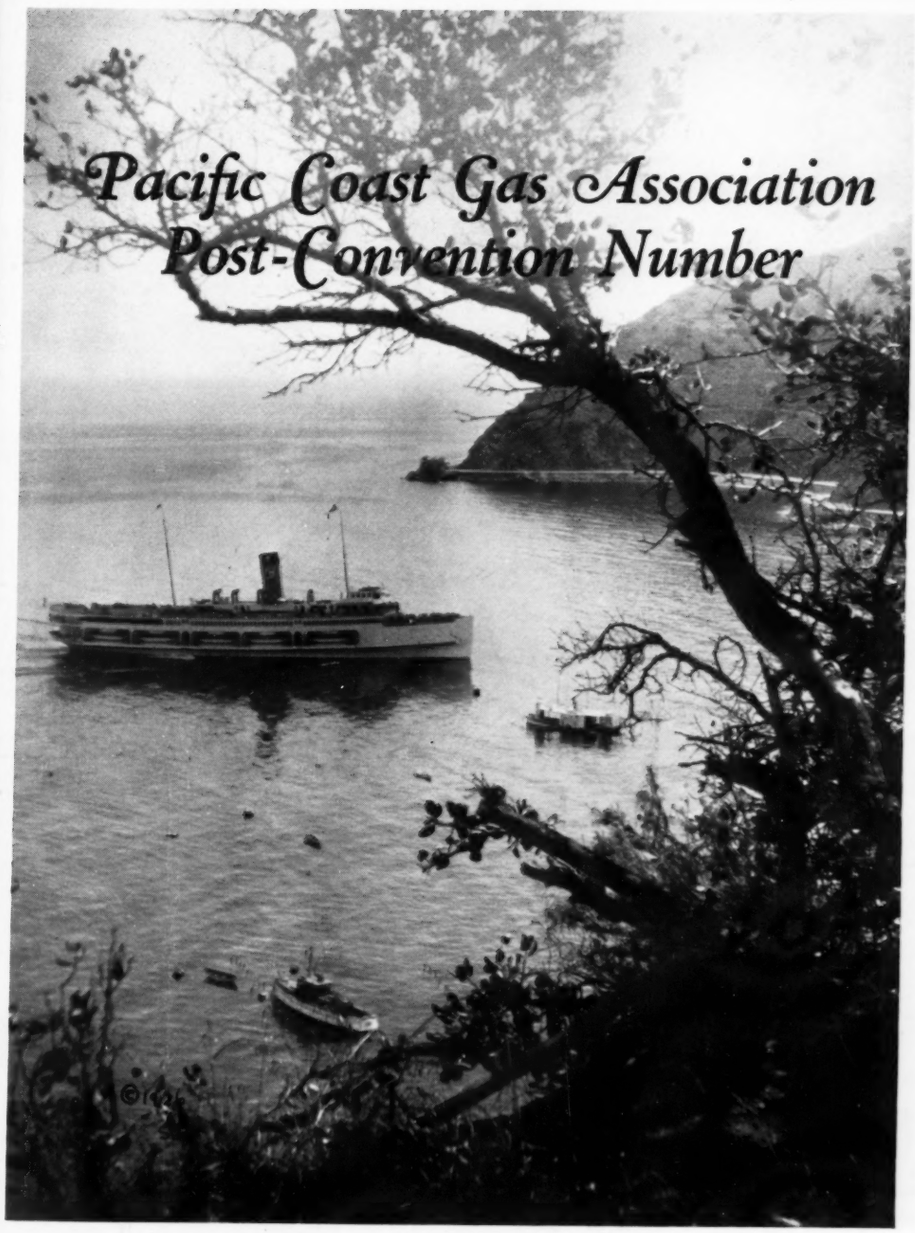
the Copy

Pacific Coast Gas Association Post-Convention Number

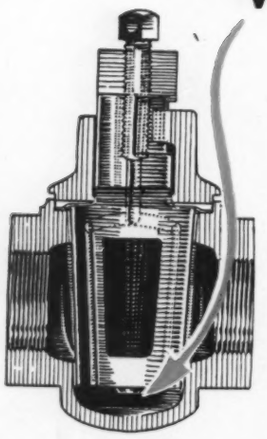


P. C. G. A. delegates steaming into the beautiful harbor at Avalon, Catalina Island, Southern California, on a day's excursion—one highlight of the Annual Convention

A MONTHLY JOURNAL DEVOTED TO THE
WESTERN GAS & APPLIANCE INDUSTRIES

Works Like a

Hydraulic Jack



The Merco Nordstrom Plug Valve readily unseats its plug because a tremendous upwards pressure can always be applied to the base. This pressure, developed by turning the lubricant screw, forces the lubricant down through ducts into the lubricant chamber, from which no escape is possible except by way of the plug seat.

Merco Nordstrom Lubricated Plug Valves
3/8" to 16"

In the Street—
In Governor Pits
On By-Pass Lines
On Fire Control or Service Lines
As Curb Cocks
On Pressures from Few Ozs. to 100 Lbs.

In the Plant on—
Gas Lines
Steam Lines
Feed Water Lines
Tar Lines
Ammonia Liqquor Lines
Cooling Coils
Quenchers
Quenchers
Spray Lines
Reversing Gas Lines
Acid Lines
Water Lines

On Natural Gas—
On Well By-Passes
Collection Lines
Transportation Lines
On Pressure as High as 400 Lbs.
Distribution Cut-off Valves
Gasoline Recovery

It Won't Stick--It Won't Leak

MERCO NORDSTROM VALVE COMPANY

SUBSIDIARY OF THE MERRILL COMPANY

Engineers— *Manufacturers*

San Francisco, 121 Second Street
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Houston, 613 Washington Avenue
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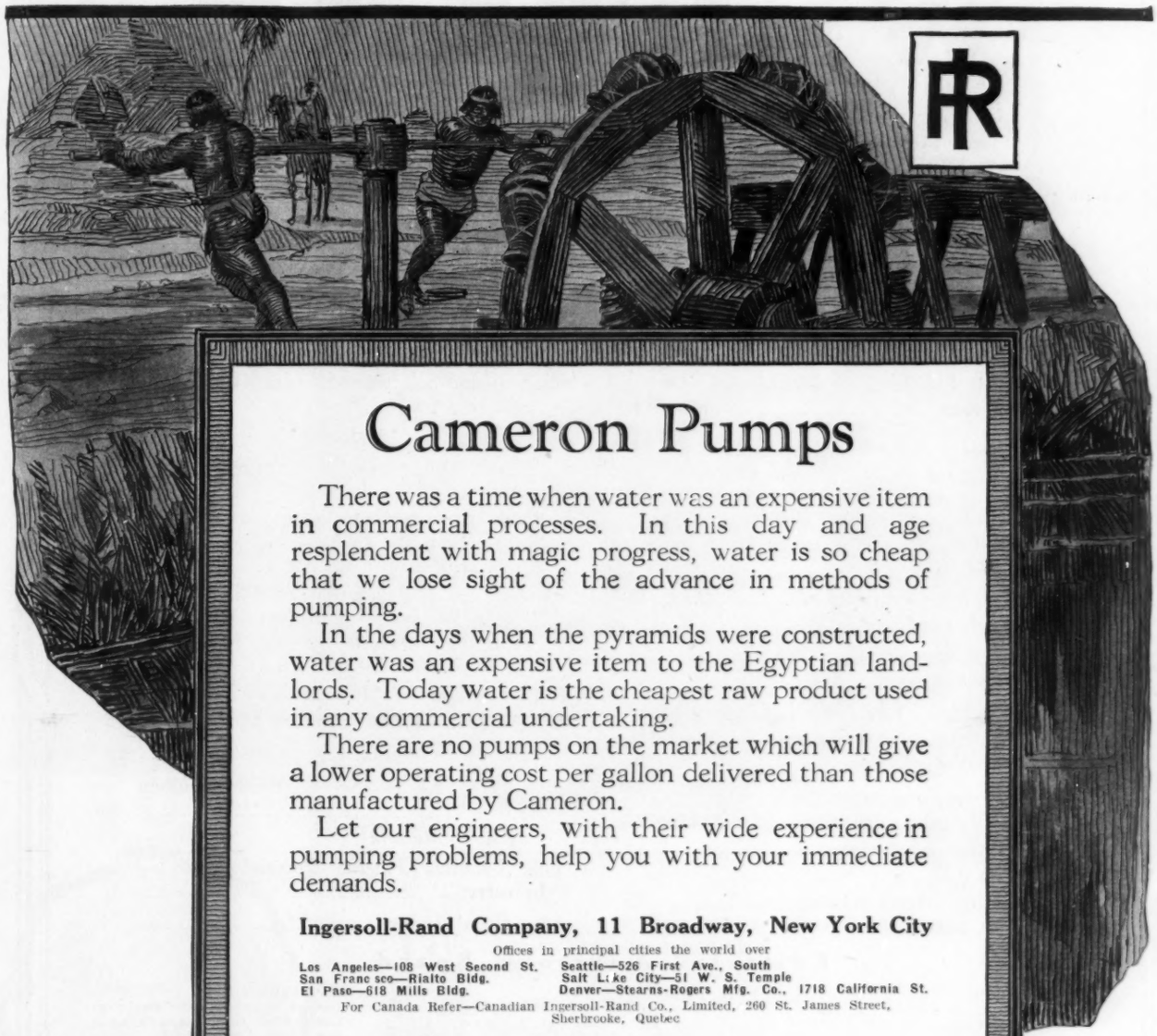
Merco Nordstrom
PLUG VALVES



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There was a time when water was an expensive item in commercial processes. In this day and age resplendent with magic progress, water is so cheap that we lose sight of the advance in methods of pumping.

In the days when the pyramids were constructed, water was an expensive item to the Egyptian landlords. Today water is the cheapest raw product used in any commercial undertaking.

There are no pumps on the market which will give a lower operating cost per gallon delivered than those manufactured by Cameron.

Let our engineers, with their wide experience in pumping problems, help you with your immediate demands.

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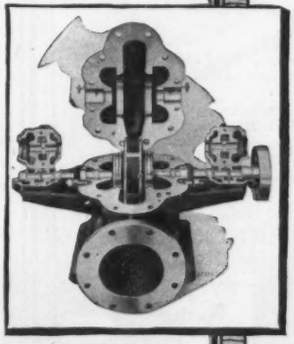

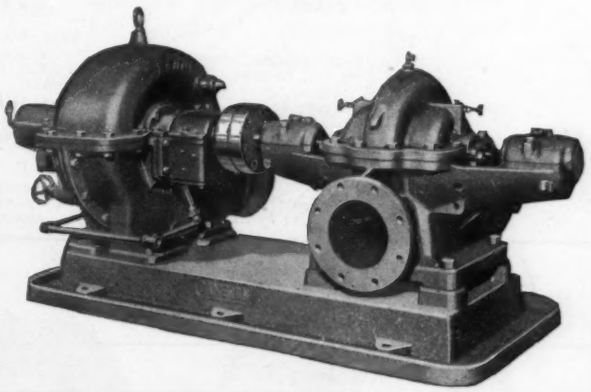

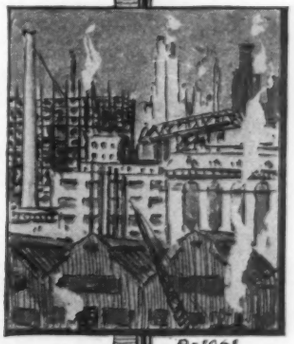

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WESTERN GAS

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Phone GArfield 2772
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Official Publication Of The
Pacific Coast Gas Association

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Manufacturing Mechanical Engineers
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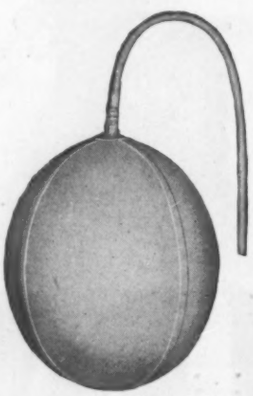
GOODMAN *Improved* SAFETY GAS MAIN STOPPER

The GOODMAN STOPPER has grown up with the Gas Industry, and like the Gas Industry, improves as it grows.

The genuine GOODMAN STOPPER is instantly recognized by the name GOODMAN which appears on the Improved Patented Locking Sleeve. All genuine Goodman Stoppers are now equipped with this sleeve. Efficient as the Goodman Stopper has always been, the new locking sleeve makes the shut-off still more effective and positive. Stopper cannot slip—gas cannot pass.

All standard sizes 3″ to 48″ in stock.
Special sizes to order on short notice.



Dependable Gas Main Bags

BUILT IN THREE TYPES

TYPE A—Invisible Seams or Seamless Bag.
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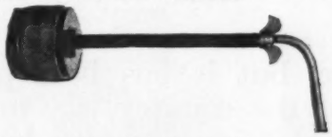
Type "A" Expansion Plug which fits into the bottom of the service tee and is quickly expanded by turning the wing nut which securely shuts off all gas. Size ¾" to 4".

Type "B" One piece Rubber Plug, taper shaped, can be quickly applied to the bottom of service tee. Fits wedge like and prevents gas escaping. Sizes ¾" to 4".

EXPANSION PLUGS FOR GAS MAINS



Fits inside diameter of pipe. Long shank reaches inside past the hub. Can be used in either hub or spigot ends. Standard sizes to 16".

SOFT WOOD PLUGS

Type C

Made from one piece number one white wood. Sizes 3" to 8".

Type D

Made from number one white wood. Pieces are properly glued together. Will not crack or split. Eyebolt and ring facilitates handling. Sizes 10" to 48".

AIR LINE MASK

With or Without Blower

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Portable Pressure Gauge for Distribution Men, Complaint Men, or around the Works.

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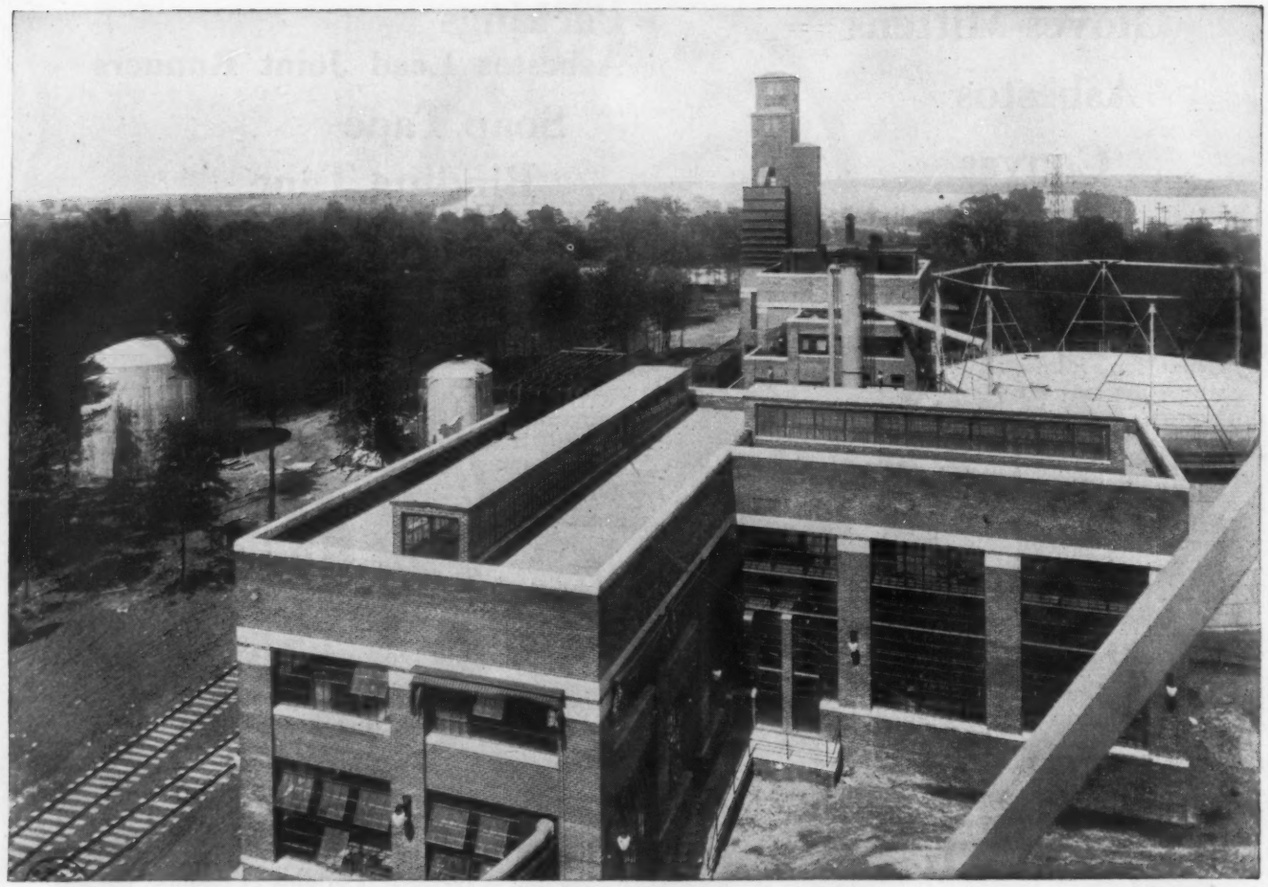
The Most Beautiful Gas Plant In America



Marysville Gas Plant, Marysville, Michigan, built for The Detroit Edison Company, Port Huron, Michigan

A gas plant can be just as attractive and kept as clean as any other industrial plant.

This plant is not only attractive in appearance, but it has been pronounced by prominent gas engineers from every part of the country, the most complete, up-to-date, and in every way modern installation of its kind ever built.

This plant, with its Water Gas equipment, illustrates Steere design, engineering and manufacturing facilities.

We Know We Can Save You Money

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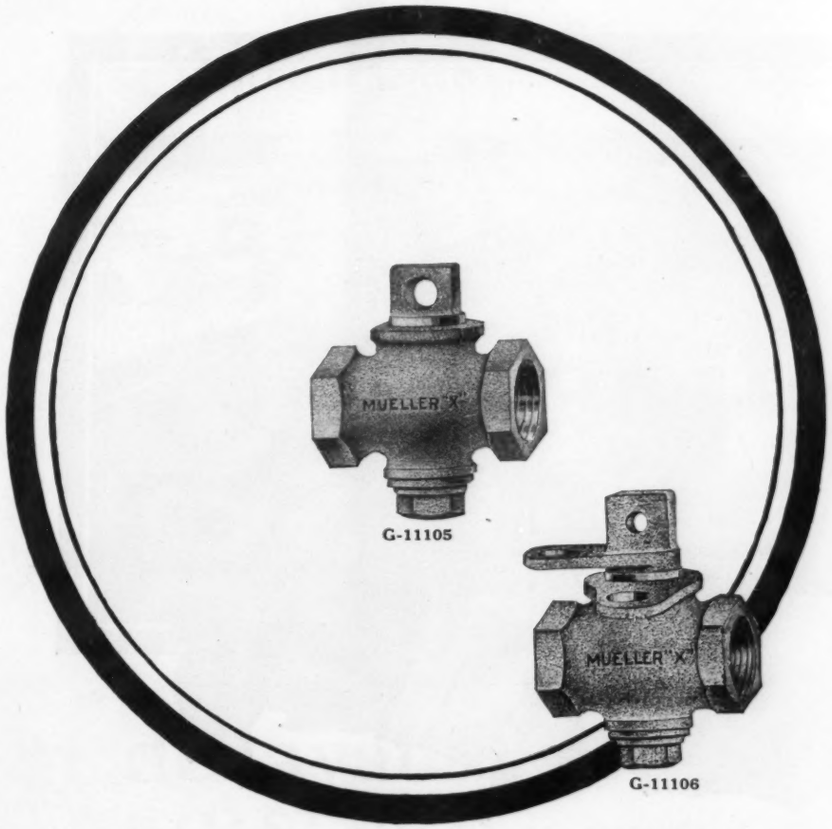
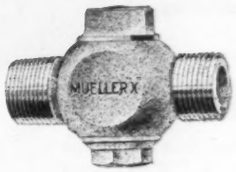


G-11105

G-11106

The gas stops illustrated are for high pressure lines.

G-11105 and G-11106 have 3-16 inch holes drilled in solid keys, as shown in cross section at lower left. G-11108 is one of the several patterns of Mueller extra heavy high pressure gas main stops.

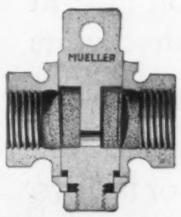


G-11108

Stops

They **look** as much alike as two peas in a pod—gas stops. You can't judge them from external appearances. But after they have been put into service—after the labor costs of installation have been added to their inventory cost—what differences come to light!

Years of service will tell tales good and bad about the stops you install. But then you need take no chances. You can specify Muellers. The cost is no greater. And you know that they are made under complete laboratory control. The quality of metal and workmanship never varies. When you use Mueller Gas Stops you know a sixty-nine year reputation backs them up.



Sectional view showing drilled solid key

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(Established 1857)

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Factories: Decatur, Illinois; Port Huron, Michigan
Canadian Factory: MUELLER, Limited, Sarnia.

280

—MUELLER—

United States Cast Iron Pipe in Buffalo's great filtration plant.

Waterworks engineers prefer Cast Iron Pipe on account of its permanence

This quality is especially valuable where intricate installations are necessary such as in this great filtration plant.

UNITED STATES CAST IRON PIPE & FOUNDRY CO.
Makers of
deLavaud
Centrifugal
Cast Iron Pipe

The length of life of the Cast Iron Pipe has not yet been determined. The first Cast Iron Pipe in this country was laid down over a hundred years ago and is still in use.

Our engineers will be glad to cooperate with you on any problem involving pipe, castings or fittings.

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Micro-photo of
Sand Cast

Micro-photo of
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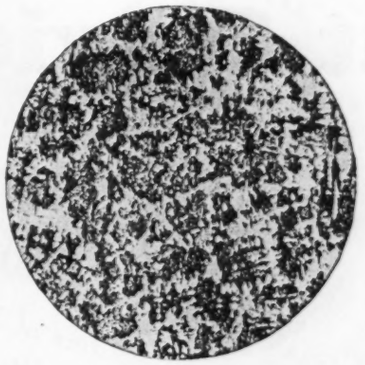

Note: deLavaud iron has the granular structure of all cast iron only that the grains are smaller and the graphite more evenly distributed.

deLavaud Centrifugal Pipe
is CAST IRON in every sense of the word

ACTUAL Service tests show even more resistance to corrosion than other cast iron pipe.

deLavaud Cast Iron pipe can be readily cut and tapped in the field.

Write to us for a copy of Professor Phillips' article on the microscopic structure of deLavaud iron.

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Producers of Natural Gasoline
Long Beach, California

February 2, 1925

Mr. J. B. Gill,
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Long Beach, Calif.

Dear Sir:

We enclose our check, in your favor, on the Merchants National Bank of Los Angeles, for Seven Hundred Dollars ($700.00), balance due you on Compressor Erection.

We desire to thank you for the efficient manner in which you installed our plant and for the short time consumed in doing the work, you having turned it over to us in 23 days after starting work.

Yours very truly,
RESERVOIR HILL GASOLINE CO.,
By D. A. Duncan, Treas.

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NATURAL GAS ENGINEERS

COMPRESSOR PLANT DESIGN AND CONSTRUCTION

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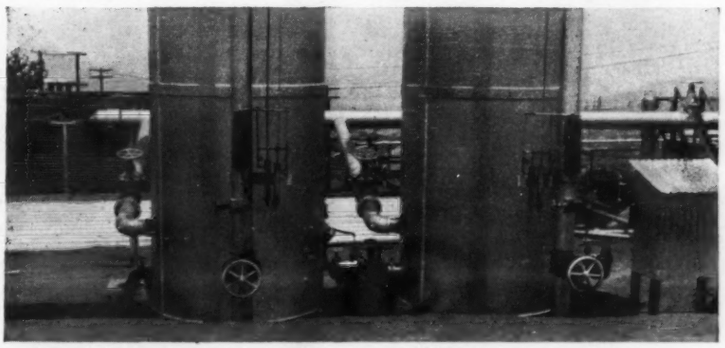
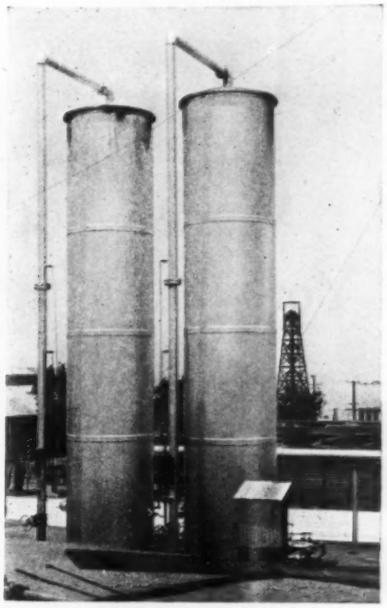
LONG BEACH - - - CALIFORNIA



Close-up view of a Campbell Installation



A typical 2-tower Campbell installation

Two Campbell Absorbers
Increased Gasoline Production
3500 Gallons per day

This record has been made by Campbell Absorbers in the San Joaquin Field, representing an increase of 20%. They paid for themselves within fourteen days.

One company has ordered 44 of these Absorbers. Two other large companies operate six of our Absorbers and many concerns operate two and three.

There are twice as many Campbell Oil-Froth Absorbers in operation in California than any other type.

May we send our Catalog?

J. A. Campbell

Consulting—Designing—Constructing

Natural Gas Engineer

P. O. Box 669 **Long Beach, Calif.**

CAMPBELL

OIL FROTH

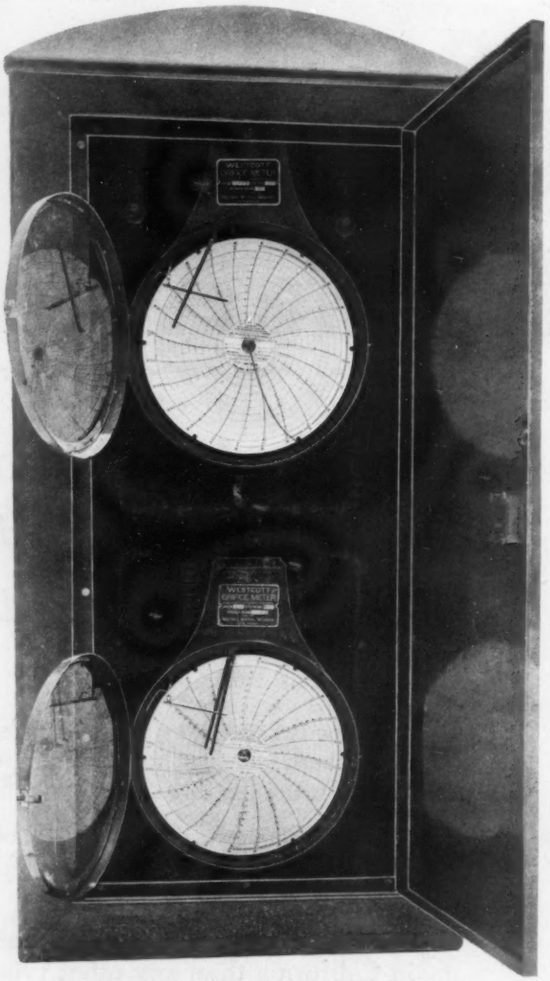
absorber

Make This Meter Set-up *Your* Leak-detector

A METRIC Orifice Meter set-up, like that shown in the photograph, on each high-pressure line out of your plant will detect leaks more quickly and economically than any other method. Such an installation will actually save you many dollars and much needless anxiety.

The technical section of the Pacific Coast Gas Association in the recent convention at Pasadena strongly recommended the use of orifice meters to eliminate leakage losses. Distribution men stated that by observing the variation in night load for a given district, they could readily detect leakage. The permanent volume and pressure records afforded by the Metric meter charts are also instrumental in solving other problems of distribution and efficient operation which gas men encounter.

A number of the larger gas companies are dividing their distribution systems into leakage districts and maintaining a careful check on the loads into these districts by means of the Metric Orifice Meter. Perhaps you might also profit by this simple and effective system. Further information will be cordially furnished.



Duplex Set-up of Metric Orifice Meters on one of the district lines of the Los Angeles Gas & Electric Co. Note the compact arrangement suitable for use in any location.

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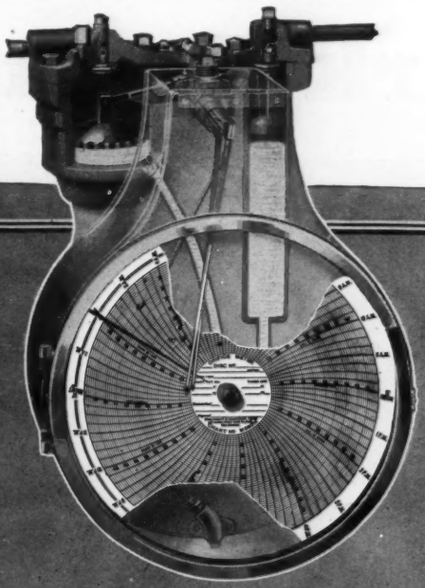

"No type of volume measuring apparatus has received so much attention as the simplest form of velocity meter, the ORIFICE meter. This type meter, with differential gauge, has proven to be the most accurate and dependable apparatus designed for the measurement of gases and liquids flowing in pipe lines.

"Many simple and complicated forms of velocity meters have been designed, but up to the present time, none has obtained any advantage over the ORIFICE, except at the expense of those most fundamental qualities —accuracy and dependability."

Quoted from Westcott's "Measurement of Gas and Liquids by Orifice Meter"
—Second Edition

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WESTCOTT & GREIS, Inc.
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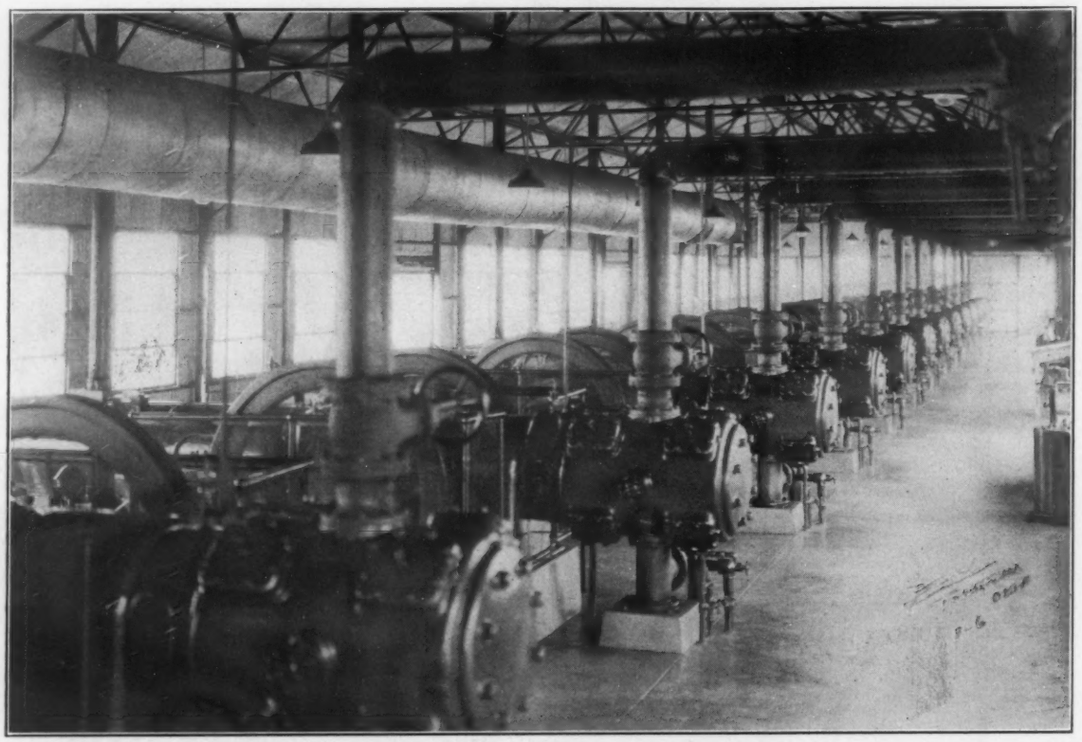

Most of California's "BEST" are Clark Users

PARTIAL LIST

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West Coast Refining Co.	990 H.P.
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California Gasoline Co.	3550 H.P.
Richfield Oil Co.	500 H.P.
O. C. Field Gasoline Co.	400 H.P.
Signal Gasoline Co.	1800 H.P.
Lomita Gasoline Co.	1155 H.P.
Union Oil Co.	2720 H.P.
Southern Counties Gas Co.	3025 H.P.

Thirty-five CLARK Plants in California

SMITH BOOTH USHER CO.

CONSTRUCTION
ELECTRIC
GAS COMPRESSION
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Compressors
60 to 200 H. P.

Drilling Engines
60 to 125 H. P.

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Owned and operated by California men for 35 years and here to stay.

CHESTER STEEL PIPE

CHESTER STEEL PIPE

Chester Excels for Gas Service

THE manufacture of pipe for gas service is a business in itself. It is a specializing business—requiring skill and exacting mill practice. South Chester Tube Company has made an exhaustive study of the requirements of plain end pipe for acetylene welding and for the various forms of couplings used with such pipe. We exercise the same extreme care in manufacturing and finishing plain end pipe as in pipe finished with threads and couplings. Accuracy of diameter and welding qualities are prime factors.

The Inspection Tests are the same. Each length of plain end pipe is individually inspected and subjected to crush end and internal pressure tests.

Such rigid mill practices and tests account for the high reputation South Chester enjoys among the largest gas companies.

SOUTH CHESTER TUBE COMPANY

CHESTER, PA.

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Also Makers of Wrought Iron Casing from 4½" to 12½"

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STEEL CASING

SPECIALISTS IN CASING FOR DEEP WELL DRILLING

SIR WALTER SCOTT
An Early Supporter of the Gas Industry

First Gas Meter Improvement

WHEN James Madison was President of these United States, the Clegg Gas Meter came into general use on the system of the Edinburgh Oil Gas Light Company. For nine years the company had striven with no little difficulty to adopt the meter as the official gas measuring device.

The prejudices of the time greatly retarded a hasty adoption of the meter as the proper gas measurement instrument. Its action, measuring constantly and silently, a subtle product such as gas, was to most consumers something difficult to understand.

However, the Board of Directors of the Edinburgh Oil Gas Light Company of which Sir Walter Scott was chairman, persisted. This early utility issued a notice in which its plan of measuring the gas consumed was explained as follows:

"This Company has come to the conclusion that beginning early in November, 1824, it will sell gas entirely by meter at this rate—

"For each 1000 cubic feet of gas registered by the meter, $10.00. For the use of the meter, $2.00 per annum."

Not a few years elapsed before the consumers of the day became accustomed to the gas meter. It was not until 1846 that the meter was legalized as a measuring device in France and several years more ere most of the continental countries adopted similar steps.

The first Clegg meter was known as a "wet drum meter." After a few years' use by several of the pioneer companies of England and Scotland, it became evident that the "wet drum" type was too heavy and cumbersome. The water line had to be maintained at a certain level and frequent servicing was necessary. The instrument often froze during the winter months, was too expensive and was found to be impractical for domestic registration.

Leading gas engineers of that time began to study the possibilities of improving "Clegg's Mystery Box." It was, therefore, not long before Necessity, the Mother of Invention, brought forth a new and improved gas meter.

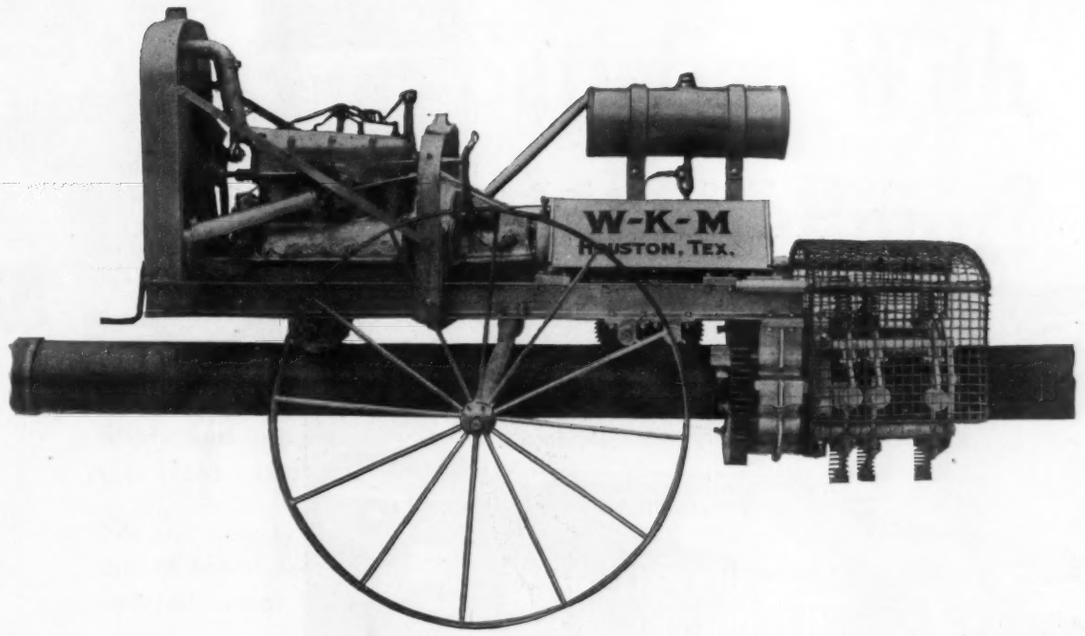
Pacific Meter Works

of the
American Meter Company, Inc.
Northwestern Representative

SAN FRANCISCO
495 Eleventh St.

PORTLAND
Northwestern Gas and Electric Equipment Co.

LOS ANGELES
2118 Atlantic St.



30c per joint is the amazingly low cost of perfect pipe cleaning reported by one user of this machine

CONTRAST this cost—30c per joint for any size pipe up to 12-inch—with the lowest figure you have ever paid for pipe cleaning work. Then compare in your mind's eye the quality of the work you obtained for your money with an ideally perfect job, a line cleaned down to the bright steel on all sides and in condition to form a uniform bond with the insulating coat. Only in this way, other than by seeing the machine itself in operation, can you comprehend the enormous significance of the W-K-M Pipe Cleaning Machine to the oil and gas pipe line industries.

THE machine may be used either for stationary yard use, or as a travelling type cleaner on loaded pipe lines raised from the ditch and supported on skids. It can be furnished to clean pipe **ranging in size from 3″ to 12″.** On any size pipe within this range it produces a class of work impossible to duplicate by any other known method of cleaning.

IN the limited space here available it would be impossible to give even an outline of the unusual achievements in pipe reconditioning work made possible by this machine. Almost all of the major pipe line companies have adopted it as standard equipment, and have entirely abandoned all other processes of cleaning pipe preparatory to painting.

EXECUTIVES responsible for line maintenance and reconditioning work are urged to write us for details and specifications of the W-K-M Pipe Cleaning Machines, together with interesting data pertaining to results accomplished by many of the world's largest pipe line companies in reconditioning their lines. Send the coupon below, or write. There is no obligation involved.

W-K-M COMPANY, Inc.

WEST BUILDING **HOUSTON, TEXAS**

W-K-M Company, Inc., Houston, Texas

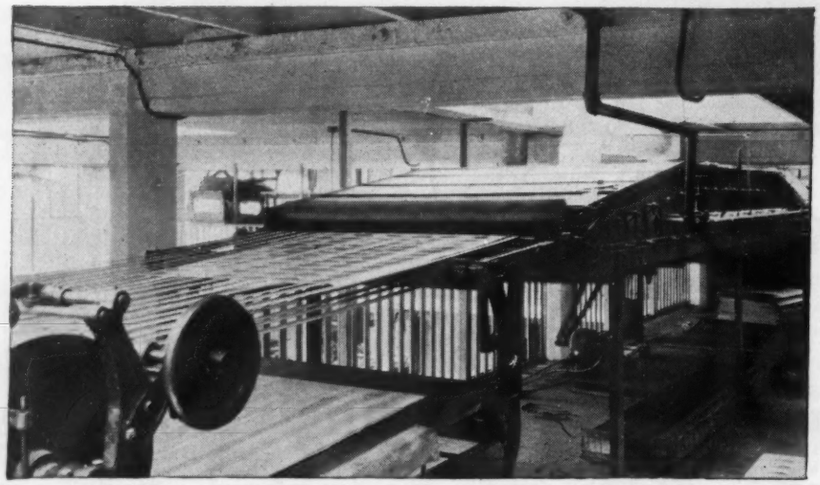
GENTLEMEN—*Please provide us with full information regarding your pipe cleaning machines.*

Name .....

City .....

State .....

The Carton Label Corporation, San Francisco, has installed this new gas-fired oven for drying labels. The oven is 25 feet long and 6 feet wide.



Varnishing millions of labels

—and drying them with gas heat

THROUGH the varnishing machine and drying oven you see above, will pass millions of three- to six-color labels each year. The labels are coated with varnish and dried—all in one operation.

As the varnish on a label is the lithographer's last finishing touch, it must be well applied and quickly dried. That is why a "camel-back" drying oven has been selected. And it is fired by 10 gas burners. For gas produces a uniform temperature that is always under control.

Pacific Gas and Electric Company engineers will gladly assist you in solving your heating problems. At all times you are entitled to their advisory service.

The P G and E engineers have information available on industrial heating operations which have been conducted successfully for many years. This service is at your command without cost or obligation on your part.

PACIFIC GAS AND ELECTRIC COMPANY

P·G·and E·

Owned · Operated · Managed
by Californians

IF IT'S DONE WITH HEAT, YOU CAN DO IT BETTER WITH GAS

Are You Satisfied With Your Gas Holder Paint?

Put your Gas Holder painting problems up to us! For years W. P. Fuller & Co. have studied this question.

Study and experience have produced special Fuller products for all Gas Holder surfaces: Lower lifts, upper lifts and shell.

For the new type Holder without water-seal, the problem is largely one of metal protection and weather resistance, a subject thoroughly covered in our Industrial Bulletin Number One.

Gas Holder Paints supplied in red, metallic, light gray, dark gray and olive green. Detailed information on request.

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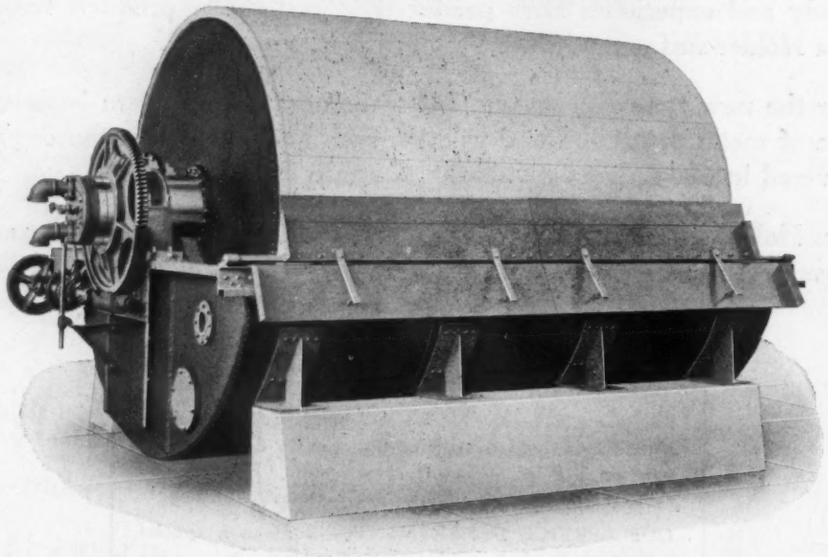
or burned in the boiler-room

Lampblack Dewatering

is a problem in every Oil-Gas Plant



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New Bedford Gas & Edison Light Company

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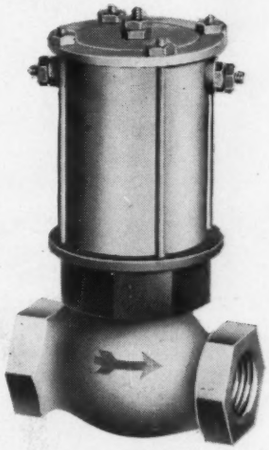
The combination of an Erickson Gas-o-trol and an Erickson Tel-o-stat is the last word in gas heating regulation—fully automatic and at a price comparing favorably with the old type push button method.

This control comprises a neat, simple and inexpensive thermostat (known as a tel-o-stat) equipped with signal light which at all times tells the status of the furnace—whether it is burning or not. The Erickson Tel-o-state actuates the well known Erickson Gas-o-trol on the furnace, maintaining a delightfully uniform temperature with a substantial saving in gas.



THE Erickson GAS-O-TROL

(Trademark cut of Gas-o-trol)
Illustration shows ⅜ inch pipe size one-half actual size.

Simple to install
Economical to use
No overheating home
No guessing temperature
Attractive in appearance
Turns off completely at night
The watch dog of your gas meter

THE Erickson TEL-O-STAT

(Trademark cut of Tel-o-stat)
Illustration is two-thirds actual size.

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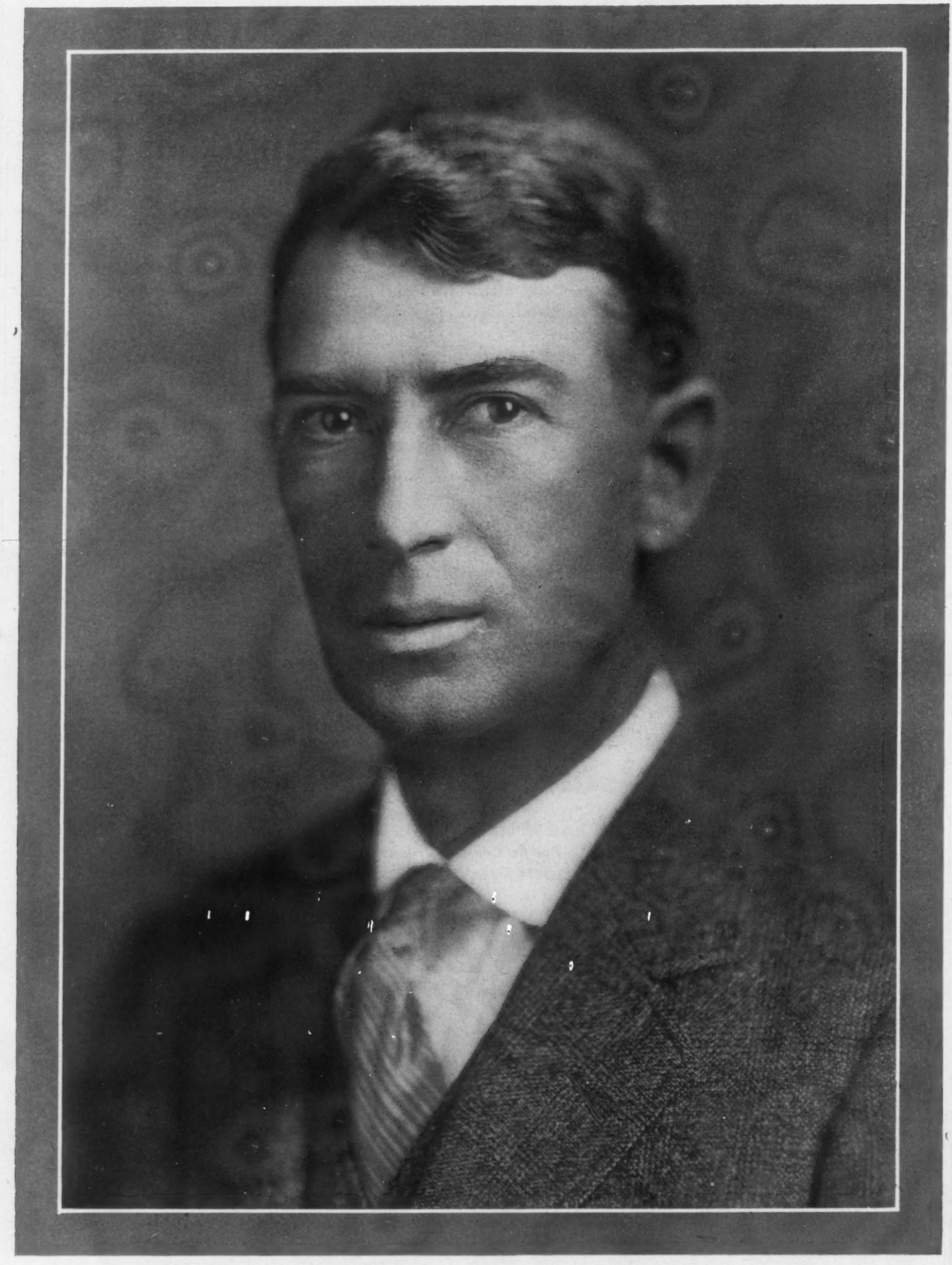
Complete catalog and name of nearest dealer on request



W. S. YARD, PACIFIC GAS & ELECTRIC COMPANY, SAN FRANCISCO, WHO WAS ELECTED PRESIDENT OF THE PACIFIC COAST GAS ASSOCIATION, AT THE ANNUAL CONVENTION HELD AT PASADENA

WESTERN GAS

A Monthly Journal of the Gas, Gas Appliance and Natural Gasoline Industries in the *Eleven Western States*

As We Enter *a* New Year

The Key-note for Pacific Coast Gas Association Effort in 1926-1927 is Sounded in This Foreword to *Western Gas'* Post-Convention Issue by the Association's President-Elect

By W. S. YARD

President, Pacific Coast Gas Association

IT is with mixed feelings that I assume the Presidency of the Pacific Coast Gas Association. The most predominant thought is the sense of the honor which has been conferred upon me, but this is closely allied with the feeling of responsibility of becoming the titular head of one of the oldest and best known gas associations in the world, and this sense of responsibility is increased by the fact that I am succeeding in the office such able men as Mr. F. J. Schafer, Mr. E. L. Hall and Mr. H. R. Basford.

The Association as it is functioning today is a splendid monument to the vision and forethought of these men and those who have preceded them. As I look back on the Association as I have known it, there has been a steady growth in its prestige and accomplishments, and I feel that I will not be criticised for saying that the Association has been and is still well in advance of the gas industry.

THE P. C. G. A. FUNCTION

This is as it should be, for the chief functions of the Association are inspiration and education. The meetings of the Association are open forums to which all of us bring our best thoughts, where we speak of our ideals, and from which we derive that broad vision of our daily work which is essential if we are to lift our heads above the rut of routine and see the vision which is the future of the gas industry. We all of us must identify ourselves with the gas industry and we must identify the gas industry with ourselves. The industry cannot progress except as we progress, and our progress is very largely dependent upon our willingness to learn from others.

It is for these reasons that the Association is of value to us and to our companies; the ideals which we here express are ultimately put into practice not only by ourselves but by others, and gradually the industry as a whole follows the Association up the hill of progress.

I cannot be too emphatic in my advice to everyone connected with the industry to join and be active in the Association, for as you give to it of your knowledge you receive of the knowledge of others and thus, both giving and receiving, you are improved and made more efficient.

I believe that the time is opportune for everyone of us to take stock of his operations, not only in regard to the activities of our Association, but also as to our various company operations for which we are responsible. During the past seven years, the gas industry on the Pacific Coast has been growing at an extremely rapid rate and (in this time) some companies have had the experience of doubling their sales, and also, at the same time, of increasing by two fold the amount of capital invested in their enterprises. In periods of such rapid expansion and large capital expenditures, it is comparatively easy for inefficiency to creep into our operations and I feel this is reflected to a certain extent in our increased costs of doing business at the present time. This is not only true in our industry but in industries throughout the country; it is a National problem. This situation is of immediate importance and calls for serious study and intelligent action. This will enable us to meet the increasingly keen competition of other fuels and allow us to present an efficient record to an inquiring public.

THE YEAR'S POLICY

It is too early as yet to speak of the work to be undertaken by the Association during the coming year. I can, however, see no reason for any radical changes of policy or of methods. Your officers will do their utmost towards continuing the plans and policies of President Schafer's administration and we are especially hopeful of being able to carry on the work which has already been done in harmonizing the mutual problems of the gas companies, the gas appliance manufacturers, and the jobbers and retailers. This is probably the most outstanding problem before the gas industry today, and if, through the Association, we can develop a better understanding between these different branches of the industry, we will have done much towards solving the appliance and service problems which have such a large bearing upon our public relations.

Pacific Coast Gas Association Men in Thirty-Third Annual Sessions

By GEORGE H. FINLEY

AS the Convention register at the Vista del Arroyo Hotel (Pasadena headquarters for gas men during Convention dates, August 23 to 27) began its climb to the final mark of 473, it gradually developed that the Twenty-third Annual Convention was destined to be unique—distinct from all preceding meetings of a kind. For the first time the sessions were honored by the presence of two women delegates, with the unprecedented total of 153 ladies registered. For the first time the Convention had its official daily scandal sheet. For the first time there were held two full programs of three-minute speeches during Convention luncheons. And for the first time there was an utter absence of complaints on Convention arrangements filed at the registration booth.

In the grand total of 473 registered, there were represented 94 gas companies and equipment firms. Twelve States and one Territory contributed of their citizenry; from distant Bridgeport, Conn., from far-West Honolulu, from El Paso, Texas, and from Tacoma, Wash., the gas men came—and the way points were represented too.

When *Western Gas'* photographer snapped this photograph at the Pasadena Convention, the personnel represented the Past, Present, and Future of the Association. Left to right: E. L. Hall, F. J. Schafer, W. S. Yard

GENERAL SESSION OPENS

By 2:00 p. m. of Monday, August 23, when the first general session convened, the Convention register showed close to 400 entries, and most of this number were on hand to hear F. B. Cole, chairman of the Pasadena board of directors, extend the Crown City's welto visiting gas men.

Mr. Cole was followed by F. J. Schafer, who as 1926 president of the Association treated four of the gas industry's major problems with an optimism which found a deeply responsive chord in his hearers. These were the problems presented in electric competition, the possible diminishing use per consumer of domestic gas, the obstacles to be surmounted in effecting a more diversified use of gas, and, the spectre of public misunderstanding.

It is customary for a retiring president to make recommendations for the future course of Associational activity, and in some instances these recommendations have been so numerous or so lofty in conception as to put their application beyond the field of practicality. President Schafer contented himself with making one concrete suggestion, related to the fourth of the problems above, that of public misunderstanding. His suggestion was that the Association should adopt and install a woman's section to act in an advisory capacity to the four sections now functioning, and more especially to the Public Relations Section. That recommendation was founded in the truth that in the last analysis women are the real customers of the gas business.

It is worth mentioning in passing that the women had their day in this Twenty-third Annual Convention. President Schafer began it with his tribute, the committee on women's entertainment carried on with a ladies' program *par excellence,* and Lester S. Ready, chief engineer of the California Railroad Commission, said the last word in his address at the annual banquet, when he reiterated President Schafer's message of recommendation that women should be looked to in shaping the public relations policy of the utility.

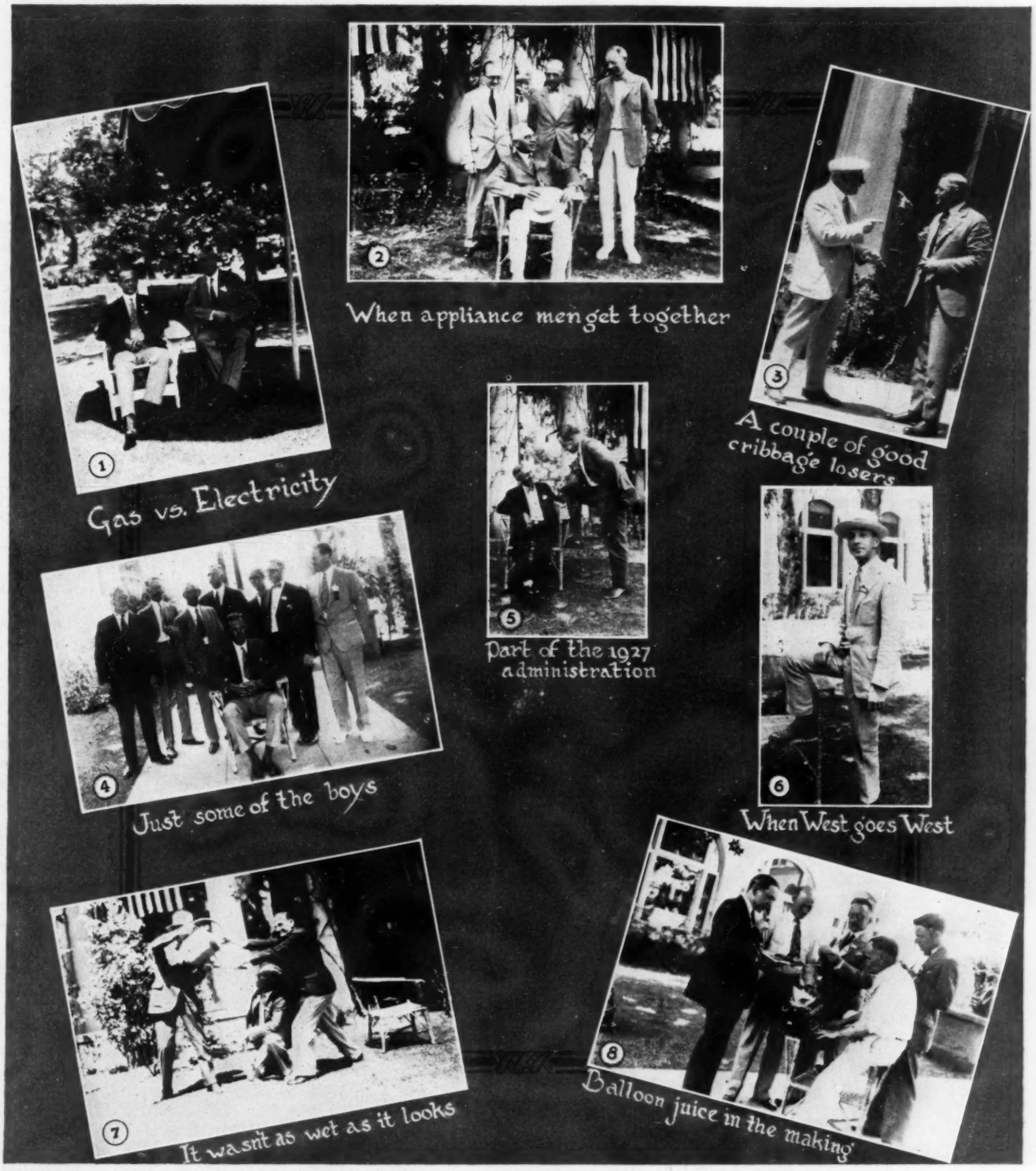
On the program of the first general session was an address by A. B. Macbeth, executive vice-president of the Southern California Gas Company and nominee for the presidency of the American Gas Association. Mr. Macbeth's subject, "The Future," bore more than its usual significance in view of his approaching responsibility as head of the national gas organization, with its tremendous power to shape the course of gas progress in America.

The market, the transportation and the production of the commodity, were the divisions under which his theme was treated. Producing gas at a price, said Mr. Macbeth, is an outstanding problem of the future, and for the consummation of this task he bespoke the unstinted cooperation of every member and every factor of the gas industry, under the banners of the American Gas Association and other organizations working to the same end. Mr. Macbeth's remarks on the optimistic course of gas progress in the West in the year 1925 had a particular meaning to the Western men to whom his remarks were addressed, and this section of his message will be found complete on another page.

Appropriately enough, the address following Mr. Macbeth's was made by J. W. West, Jr., field representative for the American Gas Association. Mr. West's clear exposition of the "Blue Star Sales Plan and Appliance Testing Laboratory of the American Gas Association" had the effect it was intended to produce; it aroused in Western gas men an appreciation for the work being done on a national scale through these important A. G. A. agencies, and instilled a desire to cooperate in the A.G.A. program, which should bear fruit in the year just ahead.

THE NEW ADMINISTRATION

Judged from the trend of the first general session of the Convention it is evident that 1926-1927 is to be a year of signal development in the West, both in Associational activity and in the path of gas progress in general. The enumeration of those who comprise the new



Left to right: 1. F. J. Schafer, S. Waldo Coleman. 2. F. U. Naylor, B. S. Pedersen, Geo. P. Egleston, C. B. Babcock. 3. Henry Bostwick, W. P. Hutchinson. 4. Seated, R. S. Fuller; left to right, standing: G. H. Unkefer, J. H. Satterwhite, Frank Bivens, H. R. Basford, J. M. Dickey, F. E. Seaver, Norman R. McKee. 5. W. C. Hornberger, Arthur F. Bridge. 6. J. W. West, Jr. 7. W. M. Henderson, Oscar L. Moore, L. H. Dell. 8. Jay E. Jenkins, Clyde H. Potter John H. Hartog, D. L. Scott, George H. Finley.

William Baurhyte
"Dean of the Pacific Coast Gas Association Convention"

P.C.G.A. administration alone would justify the same conclusion. As determined in the elections which followed Executive Secretary Clifford Johnstone's report in the first general session, these are the men who will guide Association destiny throughout the important year which has already begun:

W. S. Yard, San Francisco....President
L. M. Klauber, San Diego.....
.....Vice-President
D. G. Martin.....Treasurer
Clifford Johnstone (Re-elected).....
.....Executive Secretary

Directors:

F. J. Schafer	J. L. Stone
W. C. Hornberger	C. H. Dickey
James F. Pollard	C. W. Platt
A. F. Bridge	W. Van Zandt
Oscar Moore	

Section Chairmen

Accounting Section.....E. N. Simmons
Commercial Section.....C. M. Grow
Public Relations Section.....D. L. Scott
.....D. L. Scott
Technical Section.....R. M. McCalley

Next in order of interest to P.C.G.A. members is the selection of 1927 Convention site, and dates and places for regional meetings throughout the year. The annual convention is due to come to Northern California next year, though definite selection of site has not yet been made by the new board of directors. Clifford Johnstone, executive secretary, gives us the following tentative outline for regional meetings in 1927.

In November, probably on the Thursday preceding the U. C.-Stanford football game, will be held a meeting in Northern California.

February is set for a Los Angeles session; Spokane will be the site for a meeting sometime in the early summer, probably in May; and there is a good chance that the Arizona meeting will be repeated, next April.

It is not possible to touch on the course of each of the sectional meetings, in which were crystallized the results of an unusually full year of committee work. One session was held by the Accounting Section, two by the Commercial, one by the Public Relations Section and two by the Technical Section. In addition, there were exhibits of gas utility and gas appliance advertising and a display of material of interest to Accounting Section members, with a special demonstration of bookkeeping machines. Interested members of the Commercial Section were offered an inspection trip through several large gas-fired heating plants during Convention time.

THE LIGHTER SIDE

Conventions, one and all, have their lighter side, without which they would not be conventions. Entertainment for Pasadena visitors was of a calibre to compare favorably with previous conventions, even that of last year at Portland. For the ladies there were motion picture parties, luncheons, bridge teas, scenic excursions to points such as Mt. Lowe and the beaches. General entertainment was featured by a trip to Catalina on Wednesday, the "play-day" of the Convention. Four electric cars left Wednesday morning from Pasadena, stopping en route at Los Angeles to pick up those leaving from that point, and carried convention delegates and visitors, and their wives and children to the number of 380 down to the Catalina docks at Wilmington. The good ship "Catalina" steamed over to the island harbor of Avalon, where a few hours of rest or sight-seeing were spent, with luncheon at the Hotel St. Catherine. As L. H. Dell, chairman of the committee on registration and information, puts it, the ocean trips were made "with everything under control, and dry—ask 'Hutch' or 'Win' Langdon."

What might be called entertainment, but what more properly comes under the head of conviviality and good fellowship, was present to never-exceeded degree in the two luncheon programs, Tuesday and Thursday of Convention Week. "Dan" Scott, of Los Angeles, attending his first gas convention, had the dubious privilege of serving as chairman of the luncheon programs, and he did his job with the same thoroughness and dry humor that he edited "Balloon Juice", that indispensable chronicle of Convention pseudo-history. His efforts were abetted by those of the stunts committee, consisting of "Lou" Dell, Oscar Moore, and "Billy" Henderson, all of Los Angeles.

Just to suggest a few of the unexpected developments at these luncheons, we submit and testify:

That President Schafer played the accordion.

That A. E. Peat officiated as clergyman over the corpse of Mr. Public B. Damned.

That red-whiskered Diogenes (Frank Maple) entered the banquet hall with lighted lantern, looking for an honest man, and found the object of his search in A. B. Macbeth, A.G.A. presidential nominee—and Nick Harris in person brought witness that he "didn't know anything against Macbeth."

And that the four or five remaining stunts which we cannot mention were absolutely on a par with those above.

The orchestras of the Southern California Gas Company and of the Los Angeles Gas and Electric Company contributed much to the luncheon atmosphere, the first named playing on Tuesday, and the second on Thursday.

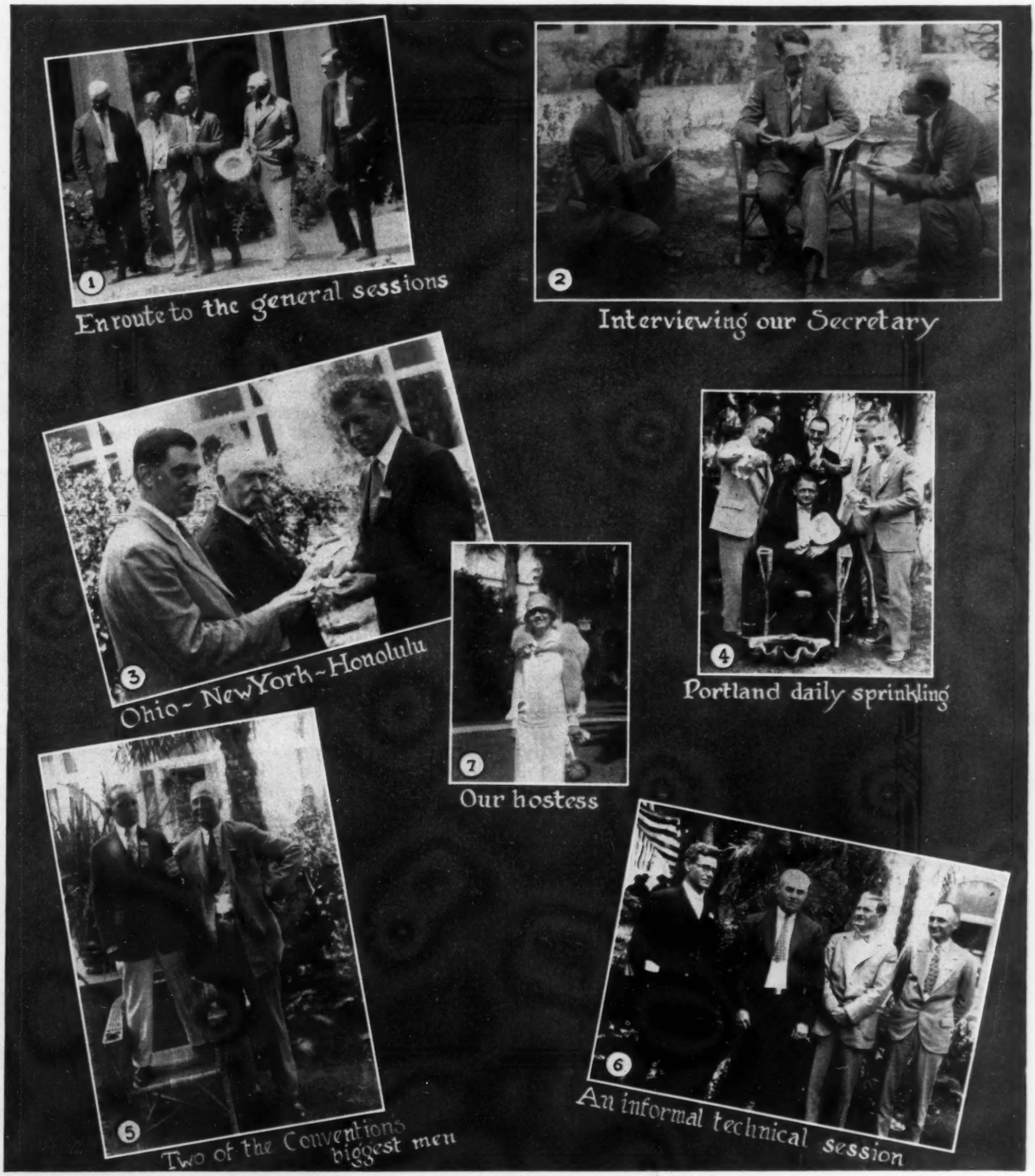
THREE-MINUTE SPEAKING CONTESTS

But the highlights of the luncheons were the three-minute speaking contests. On Tuesday seven speakers, representing the four sections of the Association, spoke to the theme "What the ——— section has contributed to the gas industry during the past year." Speakers were A. E. Peat, and D. G. Martin (Accounting Section); J. Earl Jones and J. C. Hayden (Commercial Section); Harry J. Smith (Technical Section); and Don C. Ray and L. H. Dell (Public Relations Section). The cup donated by the Association for winner went to Don C. Ray, with J. Earl Jones and J. C. Hayden second and third, respectively.

On Thursday 10 speakers condensed their ideas on "What is the greatest present need of the gas industry?" into three minutes, to the high entertainment and edification of all within hearing. Speakers were Miss Isabel Allobach, Paul A. Patchen, S. C. Singer, C. W. Downs, W. M. Henderson, William C. F. West, B. H. Parkinson, Walter M. Berry, F. U. Naylor, and George Bowersox. The cup went to Mr. West, second place to Mr. Patchen and third to Mr. Henderson. Look for the winning speeches on another page of this issue.

D. L. Scott, Clyde Potter and F. H. Holden constituted the three-minute speech contest committee. A special committee judged the manuscripts for both contests in advance, not knowing

(Continued on Page 44)



Left to right: 1. Frank J. Gartland, C. H. Webber, Don C. Ray, B. S. Pedersen, Geo. L. Myers. 2. J. Charles Jordan, Clifford Johnstone, F. H. Holden. 3. Chas. W. Stevens, S. F. Hayward, Frank Q. Cannon. 4. Seated, F. L. Nagel; left to right, standing: John H. Hartog, R. M. McCalley, C. R. Johnson, B. H. Parkinson. 5. D. L. Scott, W. M. Thompson. 6. J. A. Harritt, Frank J. Gartland, Walter M. Berry, D. H. Perkins. 7. Mrs. Norman R. McKee.

District Governor Installation

By W. M. HENDERSON

Superintendent of Gas Distribution
Los Angeles Gas & Electric Corporation

Showing combination vent and guage box standard used in the curb over district governor vault

THE location of district governors to serve and maintain pressure on distribution gas mains is a function of distribution design. The areas requiring such service are apparent from a survey of the facts, or evident by extreme variation in service pressure on the distribution mains. The selection of a suitable place in the public street accessible for connections and convenient for inspection is a problem that must be decided with regard for each particular installation.

SIDEWALK LOCATION SUPERIOR

A survey of any location will disclose the fact that the sidewalk may be used to withstand all heavy traffic trucks and structure built beneath the roadway. These facts are apparent. A governor vault beneath the street requires a manhole on the surface. The manhole frame and cover must be strong enough to withstand all heavy traffic trucks and therefore is usually far too heavy to handle. This same manhole frame and cover must be sealed to prevent street surface water from leaking to the governor vault. Whenever inspection of the vault or adjustment of the governor is required the manhole cover must be removed and in so doing highway traffic is interfered with and men exposed to more or less danger.

A sidewalk approach to the governor offers an answer to every obection set up above and in addition has other advantages. A sidewalk is limited to foot traffic; therefore there is no need of heavy manhole castings. There is no need to seal a frame located on walk as surface water does not exist, or is quite limited. Opening of manholes is not an interference to traffic on sidewalks, nor is it accompanied by any danger.

In residential districts the sidewalk cement surface does not cover the full width, for parkways exist near the curb. Such strips offer very excellent locations for manhole approach, and the covers and frames may be laid in cement to join the sidewalk proper to the curb.

The dimensions of the vault are dependent upon the size of governor to be installed. The vault need not be restricted to the space beneath the sidewalk, but allowed to extend into the street; in fact this is very desirable, for by so doing short connections between governor and gas main are possible.

As the sidewalk is a part of the public street, permission to occupy it is granted by the municipal authorities. This permission they are pleased to grant, immediately the advantages of such a location are appreciated. As the traffic problem is more or less an issue in every community, there is every desire to keep obstructions from the street proper. Thus our city authorities will be inclined to encourage the selection of sidewalk locations for governor vaults.

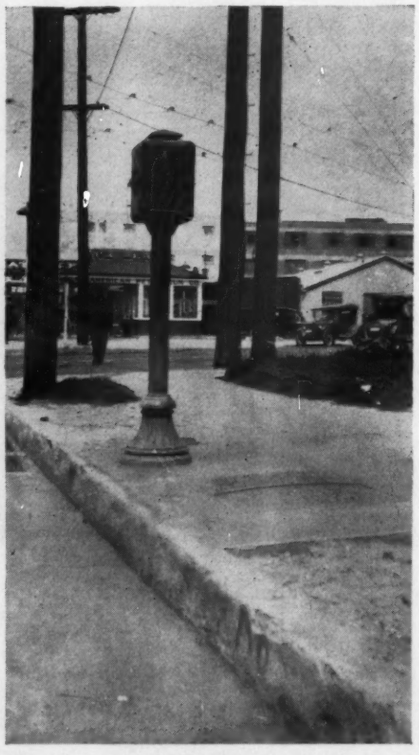
In occupying the walk there is one fact that should be observed. A clear space of at least 6″ should be left between inside of cement curb and outside concrete of approach throat to vault. This space allows sufficient clearance for electrolier conduits in case boulevard lighting is ever installed.

CONSTRUCTING THE VAULT

The construction of the vault should be to specifications in order to insure water-tight walls and bottom. A suitable hole is first excavated, the side of which will serve as the outside form for the concrete work, unless the ground is sand, when wood frame walls must be provided.

If ground water is present, waterproofing must be provided. Lay about four thicknesses of tar paper on the bottom, lap the joints and extend the ends up the sides, and hold them against the earth walls by large wire staples. The floor should then be poured. It is well to grade same to a sump made from a foot piece of 10″ pipe.

When the floor has been placed the installation of the governor and all fittings within the vault are constructed and connected to the gas mains. The waterproof paper, three or four thicknesses, is then placed against the earth walls and all joints lapped. The inside wooden frame forms are placed, and the



Compare the general appearance of this sign of gas service with that of poles in background

pit ready to pour. Walls and top are cast at one time. Old iron rails or I-beams are placed in the top to support traffic load placed on the roof.

The design of the governor installation deserves all the thought and attention that is applied. The expected loads the governor will carry must be known in order to select a proper size. Size is a function of capacity, and not to be determined by the diameter of gas main connections. Some types of governors allow for a change in size of valve seats. This is a convenient construction, as it permits the installation of a full dimension governor for future load development, with small seats for present load conditions. In selecting a governor endeavor to secure operations with open valves rather than the condition of "wire drawing", which will soon cut grooves in the valve seats.

PROTECTING THE VALVES

To protect the valves from cutting by deposits from the transmission lines, a dust collector should be installed ahead of the governor. The dust pot design that is effective contains a screen with sufficient surface area of holes to equal the area of the connections. The screen is placed in the pot against the direction of flow, and all dust or scale falls from the surface to the pot bottom. A good material for making a screen is No. 26 brass screen, 225 mesh per sq. inch. Occasionally extremely fine powder is observed in the lines. This does not injure the valve seats, but does prove a nuisance to services. The use of horsehair packed on the inside of the screen serves well as a catcher of such dust.

Consideration must be given both inlet and outlet pressure in order to specify the proper diaphragm diameter. To secure sensitive operation the area of diaphragm must bear the proper relation to the outlet pressure. Low outlet pressure requires a large diaphragm. If pressure is to be increased above the fixed pressure suitable for the governor, it can be done without changing the governor head, by inserting a double metal plate above and below the leather diaphragm —this plate to have an opening of such diameter as will suit the new working pressure of the governor. In this way a new diameter of governor head is easily produced.

OBTAINING SHUT-OFF

To obtain a positive shut-off with a governor, without building up the outlet slightly, is not to be expected. However, in operation few governors leak. The only force operating to close the valves tight on the valve seats, is the resultant difference between outlet pressure working over the diaphragm, and the lever arm and weight exerted on the valve rod tending to overcome the diaphragm pressure and open the valves. This difference is slight, except when outlet pressure builds up. Then the excess pressure on the diaphragm may force the valves to set tight on the valve seats. Governors with unloaders can be constructed for specific purposes; that is, by the use of a solenoid the lever arm weight may be picked up; then the diaphragm pressure action is unrestricted.

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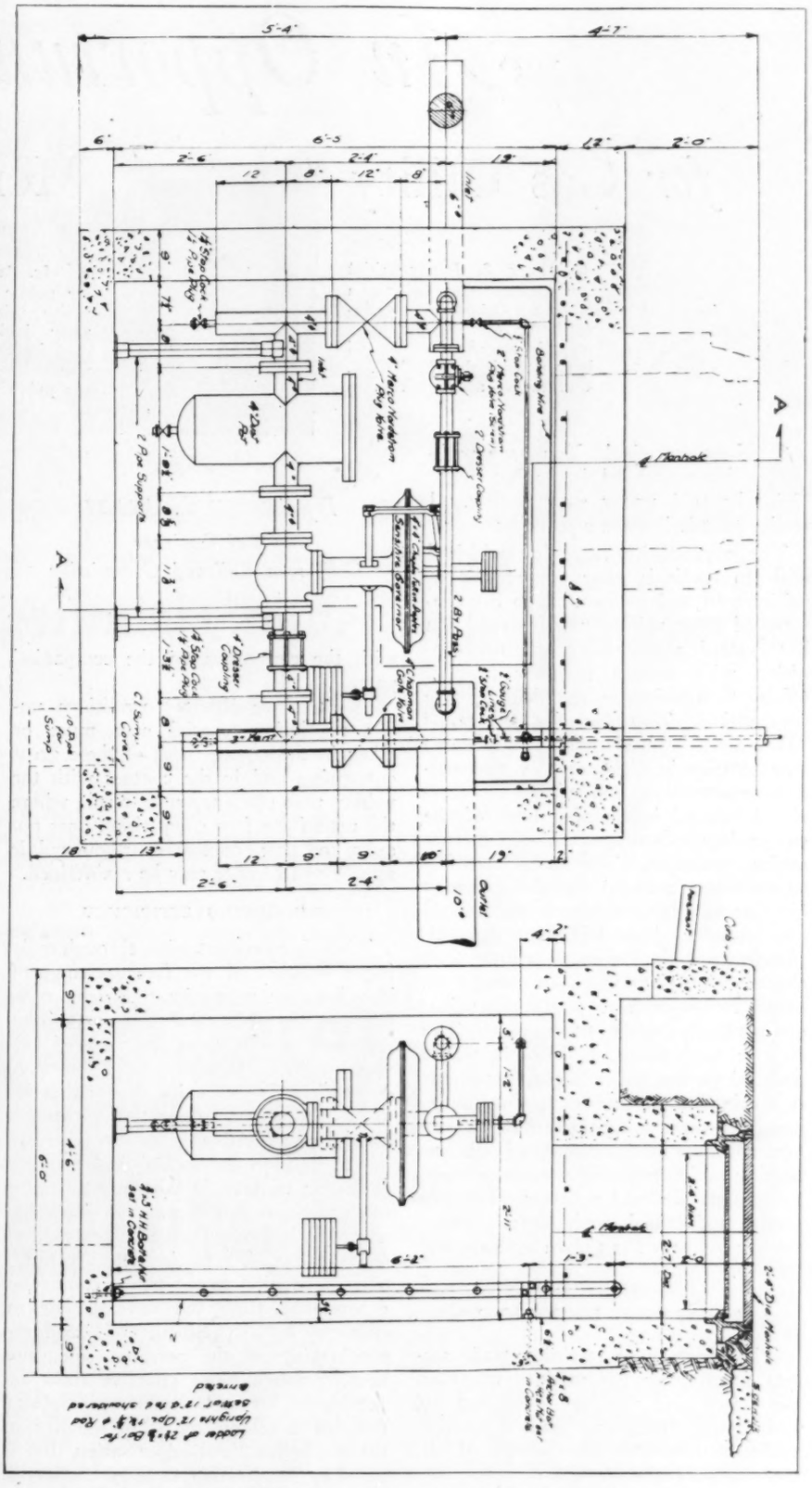

Detail drawing of governor installation in vault

An Opportunity for Gas Utility Men *and* Women

¶ Lester S. Ready, chief engineer, California Railroad Commission, delivered the address published on this page at the annual banquet of the P. C. G. A. Convention at Pasadena.

¶ Mr. Ready's opinions on public relations, with which this address principally deals, deserve attention, for he speaks from two viewpoints—the utility's, and the public's.

By LESTER S. READY
Chief Engineer
California Railroad Commission

AN opportunity! You have probably wondered just what might be said under such a title. I realize that it is quite embracing.

The opportunity regarding which I wish to speak is your opportunity as utility men and women. The development of great utilities under regulation has created a somewhat different condition with respect to their business affairs than exists in the field of free competition. The fear of a competitor has largely been eliminated. But one case remains in California of gas company competition, and except for occasional acts of indiscretion both of the companies are leading a normal existence under regulation. The speculative feature has been reduced materially, though it exists to a large extent in the natural gas business. There is some competition in its field of service—a little with the electric utility in cooking and with other forms of fuel in heating; just enough to give zest to the business. The electric competition, as I see it, was a godsend to the gas industry, for it put new life into the industry. Much improvement in cooking appliances has been accomplished, development of efficient heating equipment made, new uses found for gas service, and a better quality of service maintained, with the result that the gas industry has grown by leaps and bounds.

COOPERATION ENCOURAGED

The necessity of retaining trade secrets from other gas utilities has been eliminated and you are permitted to, and should, freely and whole-heartedly, exchange ideas for the benefit of all, that the public be served.

High-pressure salesmanship, as distinguished from salesmanship based on service, courtesy and facts, has no place in regulated monopolies. The prices are fixed for the gas to be sold. There is no bargaining on the consumers' part and there should be no sharp bargaining with the consumers on the companies' part.

Due to these different conditions, under regulation, special care must be taken in the management of these great enterprises and in the contact with the public, that efficiency may result where the urge from free competition does not exist, and that effective, courteous public service and contact may be maintained.

DEVELOPING EFFICIENCY

There is an opportunity, through making a business of the free exchange of ideas between companies, to develop competition of brains and thought. This competition will cause the urge of efficiency that exists in strictly competitive enterprises, without its duplication or loss. There is an opportunity through careful study and supervision of personnel to develop personality and courtesy of public contact, by assuring advancement to those that best serve. This has and will largely offset the suspicion of monopolies. There is nothing much more deadening to the public contact of a company than the development of efficiency by machine methods, and the overlooking of the personal side, and nothing much more effective than development of the spirit of loyalty through development of personality in the employees. An organization that is ruled by fear, rather than by confidence and understanding, will never develop and maintain full public confidence.

There is a tendency in this world of ours to pin medals on those who do something startling, who take time to invent something. Such individuals are often brought before us and presented with citations of distinguished service and held before us as examples to follow. I do not belittle such action, but I believe in the utility field there is need of directing such honor award in a large degree to another sphere of endeavor. The public is becoming very dependent on these great utilities for the necessities and conveniences of life. Failure of service for even a short time means not only inconvenience but serious hardship to the mass of the public. The object that must be attained, therefore, is continuity of good service. In this southern part of the state there are over 500,000 homes depending entirely on the gas utilities for their means of cooking, and probably much over 200,000 for their sole means of heating. The master inventor in all probability would be a failure as one to assure continuous service to the public.

THOSE WHO DESERVE THE MEDALS

The man who has a vision of the service to the public that he is performing, and holds that forth as his responsibility and lives up to those ideals, is the man who should be given the distinguished service medal, whether he be the operator of a generator, or the day laborer in the lampblack pit, or the clerk in the window, or the general manager. That continuous courteous service is what the public wants, it is what it is willing to pay for, it is what will assure, if anything will, a fair profit to the utility. It is an opportunity to award to those who serve, who keep the service going 8,760 hours per year, a word of commendation, a citation of merit.

Some people have concluded that there is little romance, little of new fields to conquer, in the gas utility business. It is referred to as an old service; there is mostly a deadly routine. Possibly there is little of romance in the lampblack pit, in the reading of meters, in keeping

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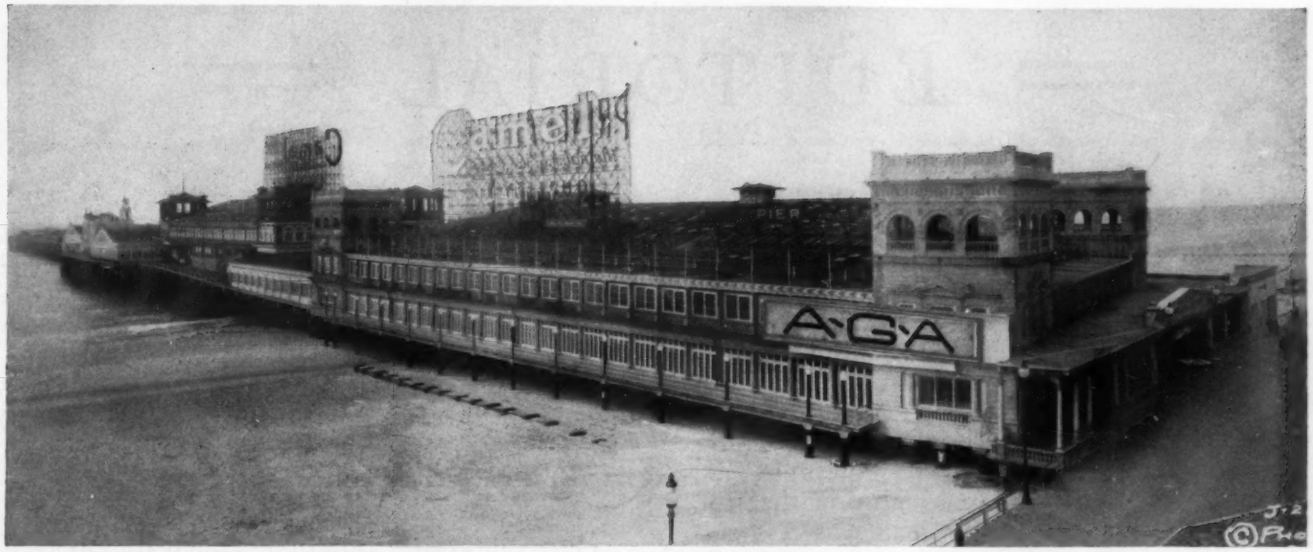

Million Dollar Pier at Atlantic City, Selected as Headquarters for the Eighth A. G. A. Convention

A. G. A. Plans *for* Annual Convention Announced

By HOWARD F. WEEKS
Editor, American Gas Association Monthly

ATLANTIC CITY'S Million Dollar Pier will be the scene of the Eighth Annual Convention of the American Gas Association and Exhibition to be held October 11 to 15, 1926. When the announcement was first made that the Million Dollar Pier had been selected, it was not only favorably received by the industry at large, but plans were put into operation immediately by the Exhibition Committee of the Manufacturer's Section to put on a "style show" of equipment and machinery that will outclass anything of the kind ever attempted before. Those who have attended A. G. A. Conventions in the past have realized that the space limitations have not been conducive to the best interests of the convention. This year, for the first time, the Association will have at its disposal in the Million Dollar Pier ample facilities with which to take care of every reasonable demand for exhibition purposes, together with commodious meeting rooms and other conveniences that are indispensable to make a successful convention.

Due to special arrangements made with several railroads, it will be possible for the Western members who plan to attend the Convention to purchase railroad tickets at reduced prices. Further details can be had direct from Association Headquarters.

There will be much of interest to the Western gas man at the convention. Not only will the Exhibition be the largest and most interesting ever held, but the general sessions and sectional meetings have been keyed to notes of general interest to every member of the gas industry. A special program committee has been appointed and is serving to lay out the schedule of the entire convention. The sectional meetings will be held as usual, with every arrangement made to insure no conflicts. These meetings give the gas man the direct contact with his own personal problems, while the general sessions permit him to view the industry as a whole.

A. Forward
Secretary-Manager
American Gas Assn.

H. C. Abell
1925-1926 President
American Gas Assn.

As in the past, the general sessions will follow a broad theme, and the program committee, by co-ordinating the entire program, will be able to give a made definite and decided note to the convention. The meetings will be featured by addresses by men nationally prominent, every part of the country will be represented, and every major activity of the gas industry will be covered.

Because of certain internal conditions in the industry, such as the establishment and successful functioning of the Appliance Testing Laboratory at Cleveland, Ohio, the industrial research program, and the national advertising program, the convention will be one of the most important ever held by the American Gas Association. Every indication points to a culmination of events at Atlantic City in October that will mean much for the future of the gas industry in America.

Since the Million Dollar Pier is new to most gas men, a few words regarding it may be of interest. Famed for the excellence of its appointments and nationally known for its fish hauls, the Million Dollar Pier has been the scene of some of the world's largest conventions. The Pier is 1750 feet long, has the largest dance floor of any pier in Atlantic City, and is centrally located in the heart of the ocean front hotel district on the four-mile long boardwalk.

Ever since the American Gas Association held its first annual convention at the Hotel Pennsylvania, in New York City, the problem of sufficient space for the Exhibition has become more serious each year. Not only have the number of exhibitors increased from year to year, but the demand for larger space for individual exhibits has also grown. At last year's convention the

(Continued on Page 60)

EDITORIAL

The Trend of Gas Progress is Westward

WHEN the course of empire takes its way Westward it carries gas progress in its van. This is not a bit of editorial fancy, but a conclusion at which anyone will arrive through observing some very evident developments.

It should not go unmarked that the American Gas Association, to which the gas industry can fairly look as its national spokesman, is taking increasing note of the region West of the Rockies. It is a foregone conclusion that the 1927 presidency of the American Gas Association will go to a Western nominee, A. B. Macbeth, vice-president and general manager of the Southern California Gas Company, Los Angeles. Again, the strong indication is that the American Gas Association convention of 1927 will be brought to a Mid-Western point more accessible to Western gas men than the former convention sites on the Eastern seaboard.

This does not happen by accident. Policies are slow in formation, and the gas man may feel assurance that the A.G.A. trend is reflecting a condition which already exists, in the growing position occupied by the West in the field of gas.

An exerpt from an address made by Mr. Macbeth at the August convention of the Pacific Coast Gas Association is published in another part of this issue. In it is stressed the startling fact that the Pacific Coast and Rocky Mountain regions show a 1925 increase in gas sales over those of 1924, three times as great as that in any other section of the country—bar none.

And the West is not simply moving on the crest of a wave which has its momentum from the East. The West is pioneering in the phases of the industry which it is most essential to stress, from a sales angle. As Mr. Macbeth points out, statistics reveal that the Pacific Coast leads the nation in the proportion which industrial and house heating loads bear to total sales. For the country as a whole, the industrial load's proportion to total sales would not exceed twenty-five per cent, while on the coast an analysis of seventy-five per cent of the total gas sold shows the exceptional proportion of forty-two per cent for the industrial load.

Mr. Macbeth's conclusion is the inescapable one that the Pacific Coast not only shows "a ratio of increased sales greater than the rest of the country", but it also is "leading the van in securing the maximum percentage of the business that should come to us from the industries."

Convention Sites in 1927

IT is not too early to give some thought to the 1927 annual convention, for now is when convention sites are being selected.

It is on the calendar that the 1927 convention shall be in Northern California. Where shall it be held—at one of the several watering places, famous for the excellency of convention appointments, or somewhere in the metropolitan area? As *Western Gas* sees them, here are the opposing arguments:

The comparative isolation of such sites as Del Monte argues for a good attendance at the business sessions, for there are no city attractions to bid for the delegates' attention. Again, much more in the line of golf and outdoor entertainment generally is offered than is available in Bay points.

To our mind, the Pasadena sessions disproved the first of these contentions. To put it mildly, it was *hot* at Pasadena the first two days of the convention—yet never has there been a better attendance at business sessions. P. C. G. A. men put business ahead of convention pleasures. There is doubtless truth to the argument that outdoor amusement would be more varied in Del Monte, or a similar convention center.

In favor of Oakland or San Francisco, there appear to us to be three valid considerations. First, a convention anywhere on the Bay would carry with it the assurance of invaluable and abundant publicity in the metropolitan dailies, which would not be accorded it to a like degree if it were held out of the Bay district. Second, the choice of a Bay site would make possible the attendance of many local gas men who could not attend more distant sessions. This feature was apparent in the Pasadena convention, which drew a very representative attendance of gas men from close-by Los Angeles. Third, there is evident the advantage of having large gas properties and appliance manufacturing and merchandising establishments within easy reach of those who desire to inspect them during convention time.

Perhaps the argument is not as preponderantly in favor of the Bay section as it appears to us to be. The October issue of *Western Gas* is offered to anyone who cares to voice his opinion, be it with ours, or contrariwise.

TAR -- *a* Valuable Product *of* Oil Gas Manufacture

By E. L. HALL

General Superintendent
Portland Gas and Coke Co.

THE layman would probably define tar as any black, sticky substance which has a most inconvenient characteristic of spoiling one's clothes and incidentally one's temper when one is so unfortunate as to have anything to do with such a vile substance.

The chemist would define tar as a black viscous fluid composed principally of the aromatic hydrocarbons derived from the destructive distillation of coal or oil.

The tars derived from various sources, while looking very much alike, really differ a great deal in their chemical or even physical composition and consequently the uses to which they may be put and in the products that may be derived from them.

Generally speaking, tars are produced when materials such as coal, oil, wood, peat or straw are highly heated in closed vessels away from the air. Thus, when wood is heated up to a high temperature, such as when making charcoal, the black tar produced is usually referred to as "Stockholm" tar, a very valuable form of tar which finds much application in connection with various uses on ships. The bulk of the world production of tar, however, is derived from coal, in connection with the production of gas in gas works or coke in coke oven plants. This tar, known as "coal tar," is one of the most valuable products in industry and is the starting point for thousands of useful substances, such as the various dyes and chemicals and various forms of pitch.

VARIED COAL TAR PRODUCTS

Coal tar, when refined or distilled, gives off liquids ranging from water-white fluids like benzol used in the chemical industries and as a motor fuel and for other purposes, to which valuable disinfectants as carbolic acid and creosotes. Dark green oils, much in demand for pickling timbers to preserve them against decay, at a still higher boiling point are produced, while remaining after distillation are the various forms of hard and soft pitch used for roofing and other purposes.

When gas is produced from oil a tar results containing many of the valuable properties and characteristics of coal tar, except that the carbolic and creosote fractions are absent. Oil tar is produced by the carburetted water gas processes and also by oil gas processes. It is with oil gas tar that this article is mainly concerned.

PROBLEM OF OIL-GAS TAR USE

When in the coal gas plants, coke oven works and even in the carburetted water gas plants the various tars produced are valuable and easily merchantable products, yet the tar produced in the oil gas processes has heretofore been rather a drug on the market. This is mainly because the tar was badly contaminated with large quantities of lampblack or free carbon and also badly emulsified with water. The tar was also comparatively lacking in many of the oils, making coal tar valuable.

For many years the tar produced by the Portland Gas & Coke Company in the oil gas process was thus considered a nuisance; being at temperatures considerably higher than coal gas tar it was less fluid and was really more of a soft pitch than anything else and due to this characteristic was extremely hard to handle. It was the cause of a number of gas works operating difficulties, such as stopping up the passages in the gas-making apparatus and necessitating much manual labor in its removal.

In the early days the tar was run in with the lampblack and, together with the latter, was burned under the boilers at our old gas plant. When the new plant was built the company's engineers succeeded in effecting a very good separation between tar and lampblack by means of improved wash box and scrubber construction, so that the tar produced was somewhat more fluid and consequently more easily pumped and handled throughout the plant. Even then the product was still badly contaminated with lampblack and badly emulsified with water and was considered more of a liability than an asset.

A stretch of highway near Blalock, Oregon, two days after having been treated with gas company's oil tar preparation

Many efforts were made to free the tar of these undesirable characteristics, but with only partial success. It was, however, possible by close attention to operating conditions to greatly reduce the amount of lampblack mixed with the tar and thereby make it still more fluid and capable of being handled throughout the plant. At about this stage the tar was composed mainly of an emulsion of lampblack, naphthalene and water. The water contained was as high as 75 per cent and seldom below 30 per cent. In spite of this high percentage of water it was found possible by constructing special burners and by heating the tar to burn it as fuel under our lampblack driers in the briquetting plant.

ATTEMPTS TO REMOVE WATER

About this time various schemes were experimented with in order to reduce the very high percentage of water to a more reasonable amount. Among the various devices that were tried in this connection were centrifugal separators very similar to those used in separating cream from milk. This apparatus failed principally by reason of the fact that the apparatus became clogged with lampblack. Another process regarding which high expecta-

tions were held consisted of soaking up the tar in a traveling belt made of loose yarn and of squeezing the tar out of this belt, thereby separating the water from the tar. This process was quite a success in principle, but failed because of the heavy expense for the renewing of the special belts used in the apparatus.

HEAT SOLVES PROBLEM

The most successful plan for dehydrating the tar was the heating of the tar under pressure by means of

Pressure distributor truck used to spray tar on road surface

steam coils. The effect of the pressure was to permit of much higher temperatures being obtained, thus causing the tar to be more fluid and thereby permitting the water to settle out subsequently. Various refinements were added to this process, resulting in the method used at the present time of heating the tar in tubular boilers under pressure, as shown in the accompanying photograph. Even this process did not result in a tar of reasonably low water content, nor was the tar of much commercial value except as a fuel. When, however, the new process of gas-making was inaugurated in 1923 a very much improved quality of tar was produced, which was quite readily dehydrated by the pressure process and which was also quite superior to the tar previously produced, in that it contained more of the higher boiling oils and was, consequently, more fluid. There was also much less free carbon.

A considerable amount of study of the behavior of our tar under various conditions was necessary in order to successfully dehydrate this tar and to properly blend the tar collected in different parts of the plant so as to form a similar and satisfactory product. As a result it is now possible to produce a very satisfactory and high grade tar containing less than one per cent of water.

DEVELOPING A MARKET

As soon as this gratifying condition was reached the new tar was studied with a view to finding applications and developing a market. It was very fortunate that the tar thus produced was almost identical with the requirements of the American Society for Testing Materials for road oiling tars.

A great deal of study and correspondence was undertaken in order that the use of tar for road work might be thoroughly understood and in this connection the services of Professor S. H. Graf of the Oregon Agricultural College station were very valuable on account of the work performed by him in testing materials for the Oregon State Highway Commission.

ROADS TREATED WITH TAR

The next step was an actual trial of the material and this was made possible by the interest taken in our product by the Road Department of Multnomah County. During 1925 a number of roads were treated with tar according to different methods, ranging from a sprinkling of gravelled roads without other preparation to an actual semi-hard surface construction with tar binder. In the first application the tar was simply spread on without any cleaning or initial preparation of the road surface whatever, in a very similar fashion to the ordinary road sprinkling program with crude oil. The principal

Mt. Hood Loop road, three months after tar treatment

application was put on the Powell Valley Road, being a portion of the Mt. Hood Loop Road beyond Gresham. This was a newly built macadam road in very fine condition at the time of the tar application. The tar made a very creditable showing at this place, notwithstanding some disintegration where the sub-grade was none too firm and where too much fine material was used in the surface. From the experience gained in these various treatments Mr. Chapman of the County Roadmaster's office made a very fine job of the Craig Road between Sandy and Base Line Road. This piece of construction was built up with crushed rock, tar and screenings and received much heavier application of tar than the other roads.

During the spring of 1926 the various roads were gone over and the various experiments were found to have been surprisingly successful, all conditions considered. This was particularly true of the Craig Road which was found to be in almost one hundred per cent condition, although subjected to quite heavy traffic. As a result of the preliminary work Multnomah County contracted with our company for 100,000 gallons of tar to be used during the coming season and this quantity, no doubt, will be exceeded.

Meanwhile through correspondence and interviews with the engineers of the State Highway Commission, and largely due to the successful work in Multnomah County, it was possible to interest the State in using our tar on the State Highways and a contract has been entered into wherein it is estimated that 500,000 gallons will be used this year. The initial application of tar by the State Highway Commission was in Eastern Oregon between Blalock and Arlington; the pebbly finish of the road treatment, as shown in the photograph, consists of the screenings thrown over the tar. Another stretch of highway out of Umatilla was also treated. Since this time numerous shipments have been made to the State Highway Commission for use in various parts of the state, one of the latest being to Parkdale, presumably for application on the Mt. Hood Loop.

ADVANTAGES OF TAR

It might be interesting to learn just why our tar has been found to be so valuable for the purpose of treating roads. It contains certain qualifications not possessed by other materials, the principal one being its quick setting quality, great ability to penetrate into the macadam and the freedom from the dangerous skidding feature of oil. Best of all is the permanent character of the road-bed so treated; in fact, it is believed that permanent highways can be developed by this means at far less expense

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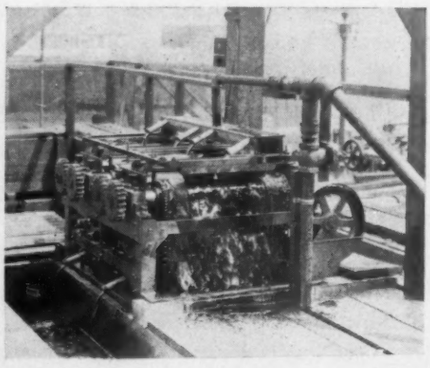

Tar dehydrator used by the Portland Gas and Coke Co.

Gas Company Merchandising

By C. B. BABCOCK

President, C. B. Babcock Company

An address made before the general session of the P. C. G. A. Convention held Friday, August 27.

THIS year, at Philadelphia, is being celebrated the Sesqui-Centennial of our birth as a Nation. One hundred and fifty momentous years have passed, the most thrilling, romantic, adventurous and materially constructive years in all history.

Through nearly the whole life of this nation the gas industry has played its part, developing with the years and the progress of the Republic. One hundred and ten years ago (1816) gas was first manufactured and used in this country and its history is a human document. Ours is the oldest industry serving in the capacity of a public utility. The pages of our past are filled with the names of able men, leaders and builders, and our gas men have contributed of their ability in the upbuilding of the State and Nation.

THE INDUSTRY'S TRADITIONS

We have great traditions—a past inspiring and an incentive to greater effort. The unwritten law of our industry has always been "The Holder Must Never Go Down." That ideal in the business world is equal to the courage, force and strength that endowed a people who, in military terms, launched the immortal phrase "They Shall Not Pass."

It is well for us to take stock of ourselves today, to use past experience as a guide, when such a procedure is fitting —to analyze our business and see if all is well in our own house. How do we stand in the light of present day progress and development? Are we holding our own? Are we advancing? Are our lines of offense and defense intact and capable of meeting the demands of a highly competitive and complex business world?

A COMPANY RESPONSIBILITY

The gas company occupies a unique position in the field of industry and commerce in that it has removed itself from competition, thereby becoming a public utility. This involves a tremendous responsibility, having drawbacks, as well as advantages. For the reason that it it no longer in the field of competition, it must, for the protection of its stockholders' interests, do everything possible to create the desire to use its product.

To assume that because of the great age of our business that momentum will continue to carry it on, in face of strenuous competition from many agencies for their share of the householder's dollar, is a dangerous thought, which jeopardizes the very life of the industry.

Is it logical, is it intelligent, is it good sense to assume that our industry can hold its rightful place in present day affairs, unless the gas company is prepared to step boldly into the field and declare in no undecided manner that its product is a necessity, a comfort and a convenience in the American home?

Huge sums have been spent by gas companies to build up their manufacturing and distribution facilities so they can adequately serve their consumers, but unless there is constant sales effort, the utility will have a large plant investment and not sufficient market for its commodity.

CONSUMER CONTACTS LIMITED

There is no industry that comes in contact with its customer less than the utility. Consider: The consumer is asked to sign a contract, the meter reader calls, the bill delivery boy leaves a bill, or it is mailed. In ten days the bill is supposed to be paid. If it is not, a collector calls, and that about sums up what the consumer knows about the utility. I do not think that is good enough contact for a great industry.

Utilities recognize the importance of public relations and this speaks well for the men who are the stewards of the gas industry. However, this is a competitive age. The fact that only one gas company is permitted a franchise in a municipality and protected by a State Commission does not remove it from the field of competition. We compete for a share of the dollar against competitors more insidious, more deadly than a competing gas company would be. Our competition is with the whole highly organized world of commerce.

May I quote from Thos. F. Kennedy, manager of the new business department of the Henry L. Doherty Company, on laundry and baking statistics, as well as on groceries and delicatessen stores?

> "For illustration: The laundries, using door-to-door men advertising with clever appeals, have increased their business 500% in five years. The gross sales of corporate laundries alone, not including wet-wash companies, Chinese, nor wash-women, exceeded $500,000,000 in 1923. Each dollar of their increase means ironing, lighting, and washing machine revenue lost to our industry.
>
> "Baking is now seventh in the country's great industries. In 1914, 75% of all bread was baked in the home; today, less than 24% is baked by the housewife. The corporate bakers report the huge total of $1,250,000,000 worth of business for 1925. We all know their door-to-door methods.
>
> "Inventories of groceries and delicatessen stores show that 75% of all shelf goods are prepared or pre-cooked foods, where eight years ago, it was only 35%. One company, five years ago, had an annual sale of 500,000 cans of soup. Now they market 18,000,000 cans per year."

Such facts must certainly awaken us to the necessity of greater effort to to sell our commodity in the home, particularly, if we expect to hold our own.

NEW CAPITAL PROBLEM

In seeking new capital for extensions, improvements, etc., we must go to the vast reservoir of the citizens' savings, and here we meet competition of no mean order. The need for capital is ever present with the great oil companies, electric companies, railroads, power interests, water companies, telephone companies, etc.; and here we must sell ourselves thoroughly or other utilities, other industries, will win the support of the investing public.

It is a fact that electric securities are more highly thought of generally than gas; electric securities sell more easily and at a higher price. Where we formerly occupied a leading position in the world of finance, our securities now place about sixth and in the following order: Water, Telephone, Power, Electric, Oil, Gas, Railroad.

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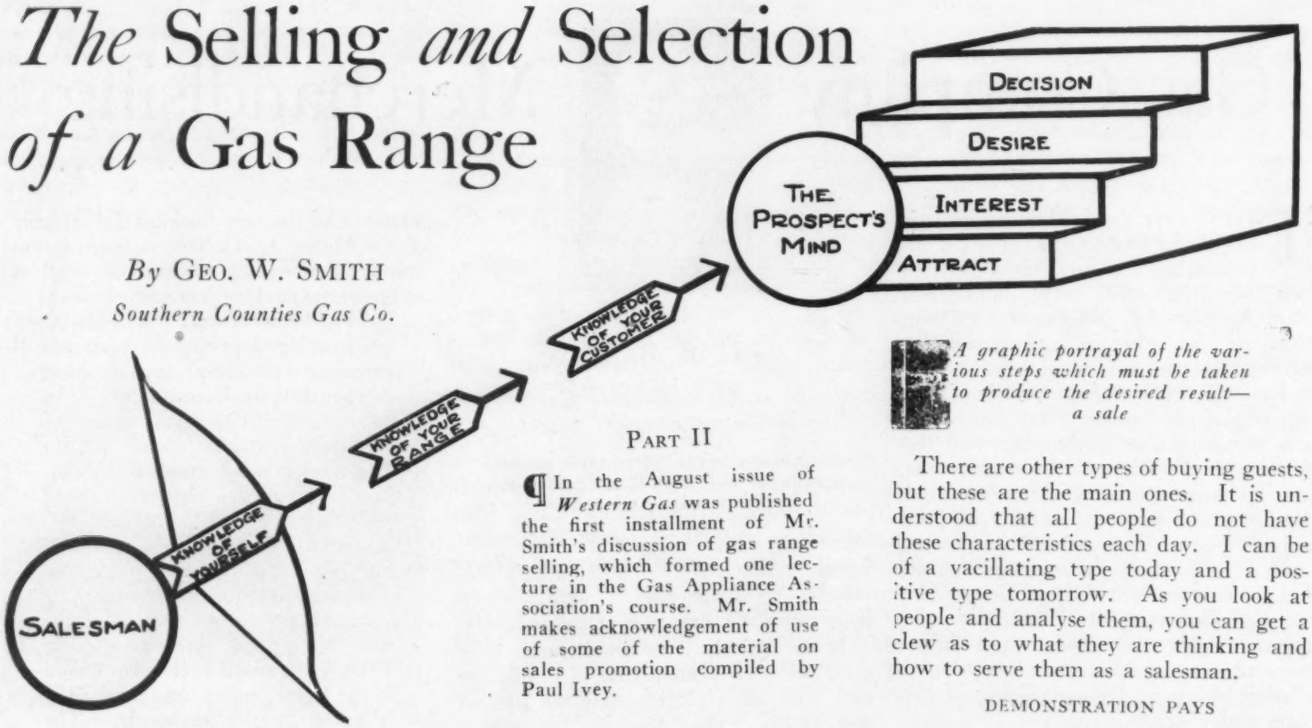
The Selling *and* Selection *of a* Gas Range

By GEO. W. SMITH
Southern Counties Gas Co.



A graphic portrayal of the various steps which must be taken to produce the desired result—a sale

PART II

¶ In the August issue of *Western Gas* was published the first installment of Mr. Smith's discussion of gas range selling, which formed one lecture in the Gas Appliance Association's course. Mr. Smith makes acknowledgement of use of some of the material on sales promotion compiled by Paul Ivey.

SELECTING a gas range is a serious business. If a wrong choice is made a mistake is apt to stand for a number of years. In helping a range buyer make her selection I, personally, like to assume the attitude that I am a host for my employer and that every person coming into our place of business is a guest. Therefore, it appears to me that an analysis of the different types of "buying guests" will enable us to serve them in a more intelligent way.

There are several different types of "buying guests." Some of those which are easily recognized are described below.

THE IMPULSIVE TYPE

The impulsive customer acts as she thinks and she decides quickly. She will say something, then stop, change her trend of thought, and say something else. When one of this type comes into your store, move quickly to greet her for she wants and requires action. Give quickly the points of your range and your selling talk. Do not lose time with this type or you are apt to lose the sale.

THE DELIBERATE TYPE

This type of customer is the opposite of the impulsive one. She is slower moving. This type is easy to sell quality ranges to. Those of this type usually ask a great many questions and will not buy until they understand fully what they are buying. They are easily recognized by their calm poise and dignified manner. Quality alone sells this type and facts are required to make the sale.

THE VACILLATING TYPE

Those of this type can usually be recognized by the aimless manner in which they look at your ranges. Sometimes they are timid. It is usually necessary for you to decide for them.

THE POSITIVE TYPE

It is a woman of the positive type that loves to decide. The over-confidence of this type, fortunately, oftentimes causes them to leave an opening of which they are unaware and it should be followed up at once. This type requires considerable tact.

THE SOCIABLE TYPE

The sociable type can easily be recognized by their inclination to talk about many varied subjects. This type, however, can be sold by treating them the way they want to be treated and at the same time endeavor by various suggestions or comments to bring the conversation back to the sale of the range.

THE DISTRUSTFUL TYPE

One of this type is the suspicious woman who does not believe what you say and shows it in her face and actions. Point out to this woman indisputable facts regarding the scientific design and construction of your range and then get her to agree that these are facts. If your range has passed through any testing laboratory, such as the Good Housekeeping plant, et cetera, point this out, as she will determine very largely by what she *sees* and not by what she *hears*.

There are other types of buying guests, but these are the main ones. It is understood that all people do not have these characteristics each day. I can be of a vacillating type today and a positive type tomorrow. As you look at people and analyse them, you can get a clew as to what they are thinking and how to serve them as a salesman.

DEMONSTRATION PAYS

There is no better way of building value than by demonstrating, because we are enabled to bring into use all of the senses of the prospect that the range will appeal to.

The only entrance to the will power are through the five senses—sight, taste, touch, hearing and smelling. Through these channels the brain receives impressions. The more the impressions, the heavier their intensity, the greater the likelihood of a sale. It is, therefore, necessary that the range display be well illuminated and arranged, for otherwise only one sense would be utilized, namely the ear. Only one channel to the seat of decision is being utilized; all the rest are going to waste. If the display is well arranged, both sight and hearing are being used. Your selling efficiency is increased a hundred per cent. The range should be connected with gas. The top burner lighter can then be demonstrated by pressing the button and lighting one of the top burners. It demonstrates to the prospect what the lighter will do for her; it becomes something more than a piece of metal at which she is looking and which you have said is a lighter. Have the prospect feel the thickness of the lining of the stove or the weight of the burner, or lift one end of the range. Then a third sense is being utilized.

By having three or more cupcakes that have been evenly baked in Pyrex dishes in various parts of the oven, you are not only sending a powerful impression to the seat of decision through the sense of sight, but you are also appeallng through the senses of taste and smell.

To become an expert in selling, you must know your range. You cannot build up the idea of value in your range to your customer unless you thoroughly know this value yourself; look for it. It will take the monotony out of your work in finding these points of value. The self-confidence you have through your knowledge of the range will be reflected in the mind of the customer. When some ranges are marked higher than others, can you give the reason for the difference in price, and build up the value of the higher priced range in the mind of the customer? To build the value of the range, you must know the reasons for that value and be able to impart that knowledge to the customer.

IT IS EASIER TO SELL QUALITY

Any experienced salesman will agree that he would rather sell a range or any merchandise that costs a little more money, provided he can justify the increased price. There is no question about this; it is easier to sell quality ranges. People do not see what they look at—they only see what is pointed out to them. *There is no value relative to your range in the mind of the customer until you have put it there.* A customer will overlook the important points in your range unless you demonstrate them.

A KNOWLEDGE OF YOURSELF

Some of the personal elements of selling are: *enthusiasm.* Enthusiasm is that force which brightens the eye and creates the smile. It creates an atmosphere of confidence around the salesman which will infect the buyer. Sincere enthusiasm can be obtained only by a knowledge of your range.

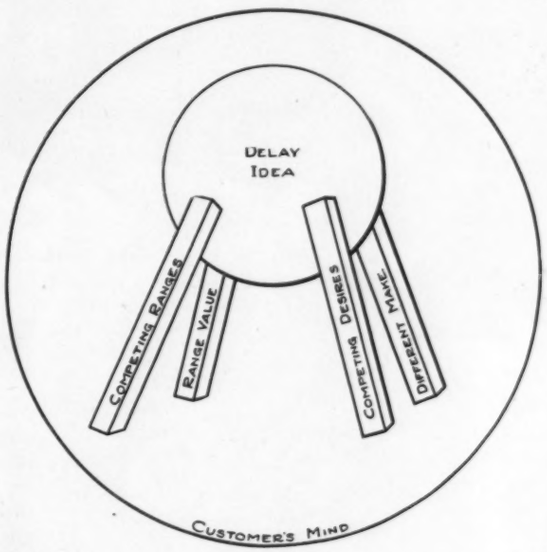
Sincerity and honesty are other elements in personality which must be considered by the successful salesman. It has been proven that eighty per cent of the sales are made after confidence has been established by the salesmen between buyer and himself. If the prospect does not believe in you, she will not buy. Exaggerated statements relative to the cost of operation of your range, or construction, etc., will often be recognized by the prospect, removing all chance for the sale.

There is one quality all of us have: *laziness.* The only difference is that some of us are lazier than others. It is hard for all of us to step out and go at an increasing pace, and we never will unless we have vision of something that will spur us on and make us move. None of us is working at full capacity, though most of us think we are.

Tact is another prime requisite of a salesman. If yyou have little imagination, you have little tact. Can you tell the prospective buyer that her idea or statement is wrong without hitting her on the head? Tact eliminates friction in sales.

When the point of closing the sale is reached, if the customer is undecided, find out the causes of delay. If you can find out the causes for not buying, you can then give an abundance of reasons for buying.

If the customer's conception of the range's value is less than its price and is the reason for delay, not only should the convenience of your range be further demonstrated, but also the reason for the price. In other words, play up the care



Here are illustrated some of the factors which hinder the salesman

taken in its manufacture, et cetera.

A second objection often met is sometimes expressed by the phrase, "I want to look around before I decide," or, "I'll think it over and come in again." Unexpressed, it is indicated by uneasiness on the part of the customer when the salesman attempts to close the sale. In the latter case, the customer may not be able to adversely criticize the range in any way and may desire it.

ATTITUDE TOWARD COMPETITORS

When you realize that the customer is desirous of shopping further before coming to a decision, what should be your attitude toward the situation? Should you attack your competitors or try to depreciate their range? Although this is often done, it is poor salesmanship. The result of such action is a feeling on the part of the customer that you fear your competitors and that you are afraid the sale will be lost if she has a chance to look around. This increases the customer's desire to do so. Confidence should be expressed that no competitor can surpass the range in merit, but the customer cannot fully realize this until she has seen other ranges. Renewed energy should then be put forth in summing up the merits possessed by your range in bringing out new convincing arguments. Nothing will sell a range to a customer prone to look around, so much as a willingness by you for her to look elsewhere and a large amount of convincing information about your range.

A third objection to closing a sale may be the presence in the customer's mind of rival desires competing to be satisfied. Since most people have limited means, one purchase usually displaces another. Often times this information can be secured from something that the customer may say or by questioning her. Knowlendge of such objection places you in a position to advise the customer and perhaps remove her from a dilemma.

ENTER THE HUSBAND

A fourth objection sometimes expressed—"my husband must see it." When the customer is sincere, nothing remains for you to do except to wait for the husband to come in. However, in many cases this objection is expressed merely to give some reason for not purchasing a range for which no desire has been created. It thus resembles the objection "price too high." You should realize that interest has not been thoroughly developed, and an attempt must be made to more intimately connect up the sales talk with the characteristics of the customer and her needs. If the sale is lost, a searching analysis of the reason therefor should be made. In going over the sales talk it will usually be found that important points were omitted or else thrown into the talk haphazardly.

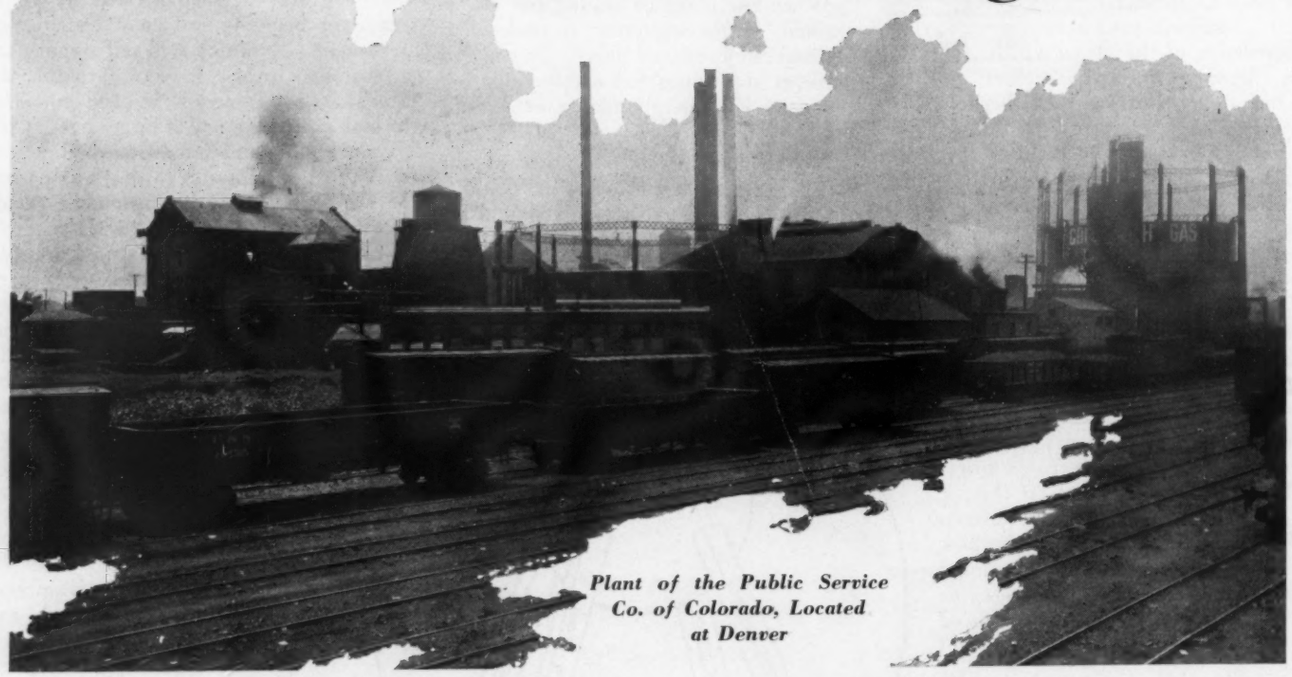
KNOW COMPETING RANGES

A fifth objection is—"It's not the right kind"; meaning, perhaps, not the right make. Competing ranges must be known, as well as your own ranges. No customer will ever feel imposed upon by you if you conscientiously show the relative superiority of your range.

When unspoken objections are met and answered, unconsciously the customer feels that she is understood, and that she is in the hands of a capable salesman who knows his range. It is needless to say, the ability to anticipate objections can only come from the study of experiences and customers. No one can be one hundred per cent efficient in such delicate dealings with human nature, but one can have the satisfaction of knowing

(Continued on Page 61)

Approaching *the* Ideal Gas Manufacturing Process



Plant of the Public Service Co. of Colorado, Located at Denver

By GEO. WEHRLE

Superintendent, Gas Department
Public Service Company
of Colorado

A paper presented before the Technical Section of the Pacific Coast Gas Association, at the Thirty-third Annual Convention

THERE may be a number of different gas manufacturing processes that approach the ideal in the particular locality in which they are used, but there may never be the one ideal process for all localities. The old axiom, "what is sauce for the goose is sauce for the gander" is not always true when the "sauce" happens to be a process for manufacturing gas, and the "goose" or "gander" a particular locality for a gas plant.

There are a number of fundamentals that apply in a general way to all gas situations, but the only correct way to determine the best and most economical process for a particular situation is to analyze all of the factors, peculiar or common to the situation, and work out a great number of different methods for comparative study. The process that is best suited will be evident in the plan which meets the conditions imposed and which shows the highest return upon the invested capital, when service and operating conditions of high efficiency are obtained.

There may be situations where greatest economy and efficiency are obtained from the use of oil as the gas making material. In other situations coal may work out to best advantage as the raw material, or it may be a combination of the two. In all considerations the cost of gas production must include the capital charges on the investment. The investment cost of generating equipment, using oil as a principal gas making material, is much lower per million B.t.u. of capacity than coal gas generating equipment, but the processes using oil seem at this time to present serious disadvantages in most localities, due to rising oil prices.

While the investment cost of coal gas generating equipment is relatively high per unit of capacity, the cost of gas generation is usually low, due to credits obtained from the residuals recovered. Where a good market for coke is available, coal gas will in most situations be the cheapest gas to produce.

On account of the character of the average gas load it seems necessary to consider two methods of gas production; one for the manufacture of a base gas and another for the manufacture of a peak gas. Due to the high load factor obtainable on base gas equipment, the investment cost per unit of capacity may be relatively high, while the cost of gas production must be low. For the peak gas, low investment cost is a necessary requisite, while the cost of gas production may be relatively high. Mr. Hall, in his paper, "Considerations Affecting Oil Gas versus Coal Gas for Pacific Coast Conditions," very fully discusses this subject and shows the extremes at which economy is available.

J. A. Perry, of the United Gas Improvement Company, in his paper, "Types of Plants and Quality of Gas Best Suited for the Development of the Gas Industry," which was presented at the American Gas Association Convention in 1925, has made one of the best contributions of useful information in the history of the gas industry. With his paper and Mr. Hall's valuable paper for use, it seems unnecessary to duplicate their efforts in this, which will be confined chiefly to a description of a study made in Denver, and of the process decided upon for that particular situation. We do not offer this as a solution of the gas problem for all localities, but in our situation it approaches the ideal more nearly than any method now known to us, and will enable us to produce heat

(Continued on Page 52)

Methods *of* Treating Water *for* Use *in* Natural Gasoline Plants

By F. M. BEESON
Luitwieler Pumping Engine Company

¶ This discussion of water treatment was presented by the author as a paper before the August 18 session of the California Natural Gasoline Association.

MUCH has been written and said with reference to suitable water supplies for the oil and gas industries. The writer has given much time to study and experimental work in connection with the establishing and treating of suitable water supplies, and it is his earnest desire that something herein contained be of benefit to the industry in helping to solve some of its problems.

Few, if any, water supplies in their natural states are pure. Pure water, H_2O, is indeed a rare article and difficult to obtain, since practically all substances are soluble to some degree. Because of this fact water readily becomes contaminated by substances with which it comes in contact.

From the time water reaches the vapor stage until it is finally discharged into the ocean again contamination is continual.

Rain water collected within twenty-five miles of London tested thirty-nine and one-half parts per million total solids on an average of seventy-three samples taken by Dr. William P. Mason.

RAIN COLLECTS GASES

Rain passing through the air collects a considerable amount of gases, the most important of which are Carbon Dioxide (CO_2) and Oxygen (O_2). The atmosphere contains 0.04 per cent of Carbon Dioxide gas and since this gas goes into solution readily in water an appreciable amount is taken up as the rain falls. This CO_2 content is frequently increased by decomposed organic matter and industrial waste. This weak solution of carbonic acid in rain water, in addition to the dissolved oxygen and other constituents, gradually dissolves the earth and minerals with which it comes in contact; thus it would appear that such a thing as a pure water supply is next to an impossibility in the natural state. This fact being established it would seem that the proper selection of treating apparatus would necessarily follow.

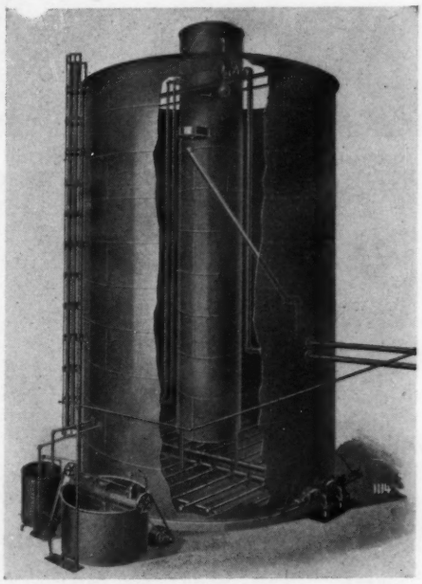
The selection of apparatus should be approached with an unbiased mind and with full knowledge of the facts in connection with each individual case, keeping in mind the chemical analysis of the water to be treated and the use for which the treated water is to be put.

It would seem that a brief classified description were therefore justifiable and for convenience we will classify the various treatments as follows:

First: Coagulant and Sedimentation.

Second: Filtration.

Third: Cold Process (Intermittent) Lime and Soda.



Combined water softener and storage tank

Fourth: Cold Process (Continuous) Lime and Soda.

Fifth: Hot Process (Continuous) Lime and Soda.

Sixth: Zeolite or Base Exchange Minerals.

COAGULANT AND SEDIMENTATION

The first, or Coagulant and Sedimentation, is probably the oldest known type of water purification, having been practiced by the ancient Chinese many centuries ago—before the dawn of the Christian era, and has been employed by many people down to the present time. It is not looked upon with much favor, however, at this time, except as an initial form of treatment to some form of the more modern treating plant of the more rapid type, and then only in the case of the more turbid or stubborn waters. This system is usually installed as an intermittent system and bears close relation to our classification No. 3, and can be briefly discussed as follows:

This system is usually installed in two or more tanks or basins, the water entering at or near the bottom, after which chemical is added and agitated by mechanical means until the chemical is thoroughly mixed, after which it is allowed to settle for from eight to twenty-four hours, depending upon the chemical content of the water, then being drawn off through some form of float-operated swinging pipe in order to take off the treated water as near the top as possible at all times.

This system may effect from thirty to eighty per cent removal of suspended solids, depending upon the amount of the suspended solids, the coarseness of the same and the time of settling, so that as a rule this form of treatment removes only the gross suspended matter and is not looked upon with much favor as a satisfactory system when used alone.

FILTRATION METHOD

The second or Filtration method can be classified in two types—the "English" Filter or the slow sand type, usually designed to filter through two to five gallons per square foot per hour, and the "American" or mechanical rapid sand type, designed to filter two to five gallons per square foot per minute, the latter being almost universally and satisfactorily used in this country. An average safe rate for individual purposes is considered to be three gallons per minute per square foot of filter area. Filters of this type are usually found most effective when used in connection with some form of coagulant, aluminum sulphate (alum) being the most popular chemical used. These filters may be built in either vertical or horizontal units, depending upon local requirements.

Many filter mediums have been employed—coke, straw, excelsior, shavings, canvas, paper, granite, stone, sand and crushed silica quartz, depending upon the requirements. The latter two are by far the most favored in this section, namely: a good grade of silica sand testing 85 per cent pure, with which California is well supplied, or a good grade of crushed and graded silica quartz. The latter possesses many ad-

vantages, as it is possible to get exact and proper grading; also the purity of the California silica quartz runs extremely high, in most cases 98 to 99 per cent pure.

This form of treatment is highly satisfactory on waters containing turbidity and suspended matter only, such as the Long Beach field, but is not adapted to waters containing hardness, when used alone.

COLD CONTINUOUS PROCESS

The fourth or Cold Continuous process has many advantages and is used extensively in plants requiring cold soft water such as railroads, ice plants, etc., and is considered quite successful if properly selected and operated. This system consists of chemical tanks, chemical proportioning and feeding devices, settling tanks sufficiently large to allow several hours settling time, and pressure filters to filter out any excess chemical to stop or retard after reaction. While this system requires more attention and skilled handling than those previously discussed, yet it is looked upon with favor by many authorities.

The fifth or Hot Process continuous system is considered by many to possess numerous advantages not found in other types. It resembles the cold process with the addition of an open type feed water heater in which exhaust or live steam can be used as a heating medium.

FEATURES OF HOT PROCESS

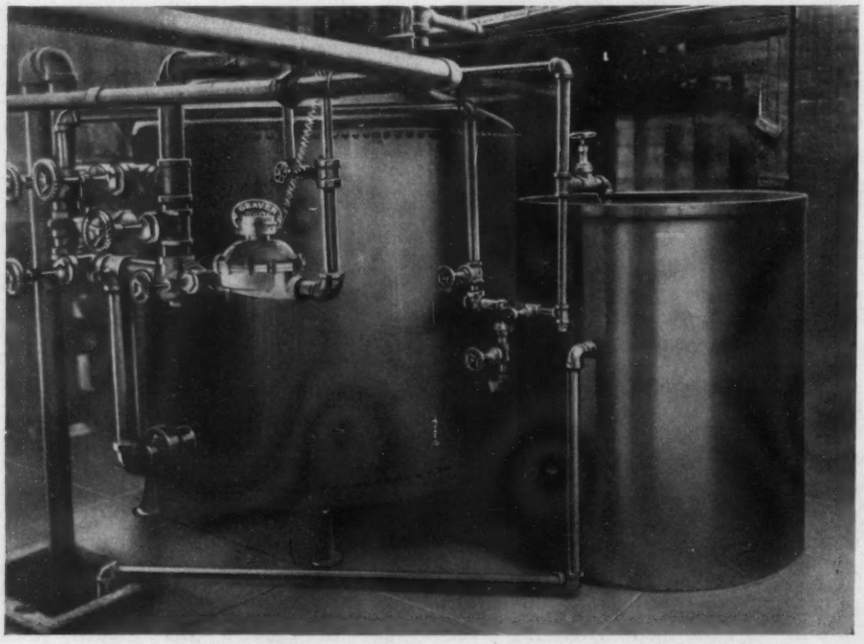
The essential features of this type of softening are: (1) The initial heating of the water to 205 to 212 degrees. (2) The chemical dosing machinery. (3) The subsidence or reaction tank. (4) The filter and savings in back wash water. The chemical reaction time in this machine, while studied by many, has not yet been definitely established. It is known, however, that the velocity of reactions is tremendously increased as the temperature is increased. It has been definitely established that the reduction of non-carbonate hardness is greater after ten minutes settling in 205 degree water than after five hour settling in 50 degrees, and even after five hours settling in 50 degrees, the calcium and magnesium salts may be further reduced by the application of heat.

The action of spraying the water over the heater trays releases the majority of the carbonic acid thereby causing the precipitation of the majority of the carbonates of calcium and magnesium. Here is also released much of the dissolved oxygen and other gases.

Much has been written about the relative merits of cold and hot process softeners and unfortunately some articles have been biased in order to set forth merits or demerits for specific reasons. True Hot Process Softeners possess a number of advantages not found in the cold process. However, the cold process has a large field of application so that the choice and selection should be based upon local conditions which may be influenced by many factors.

THE ZEOLITE SOFTENER

Number six or Zeolite Softener. Softening water by base exchange silicates, termed Zeolite, consists in passing water through a bed of mineral or material that possesses the property of removing the calcium and magnesium from the water and replacing these substances with sodium or potassium.



Zeolite softener in Industrial Fuel Supply Company's plant at Athens field, Calif.

The exchange is almost instantaneous so that the water may be completely softened by merely passing through the exchange base mineral at fairly high rate of flow.

A Zeolite softener will continue to soften water until the sodium is practically exhausted, after which time it must be regenerated by passing through a saturated solution of sodium chloride (ordinary salt). This replaces the sodium that has been removed during the softening process.

The term Zeolite through common use or misuse has been somewhat divorced from its original meaning. The term Zeolite was applied to a group of hydrous silicates or special mineral of natural origin. At present, however, the name is applied to all of the base exchange silicates whether of natural or artificial origin.

There are a fairly large number of natural and manufactured exchange minerals, the chemical formulas of which vary somewhat, but for the most part consisting of Hydrous Silicates of sodium and aluminum. The sodium, being released easily, is replaced by other bases, forming new combinations. Hence it has been found by actual experience that with the natural Zeolite it is more or less undesirable to stimulate the base exchange minerals with chemicals to any great extent, for it is reasonable to assume that any stimulation that can be put in by an artificial process can likewise be washed out by continual usage, so that for the most part the natural Zeolite, unfortified by artificial methods, has been found to be the most stable.

A number of words and terms have been coined to describe the various base exchanges or Zeolites, and consequently much discussion has arisen as to the proper classification—the classification most generally used (1) Natural, (2) Artificial, (3) Synthetic, (4) Slow Regeneration, (5) Rapid Regeneration, (6) Porous, (7) Non-Porous, etc.

It is to be expected that there would exist frequent confusions in the proper interpretation of the various classifications, so that a brief interpretation would seem warranted at this time.

INTERPRETATION OF CLASSIFICATIONS

The term "natural Zeolite" is somewhat a misnomer, since it does not adequately describe any base exchange mineral to be used, as there are many minerals found in various parts of the world that possess exchange ability. Probably the most important deposit of base exchange mineral yet discovered in the United States is the New Jersey Green Sand, or glauconite. This is found in extensive deposits in Southern

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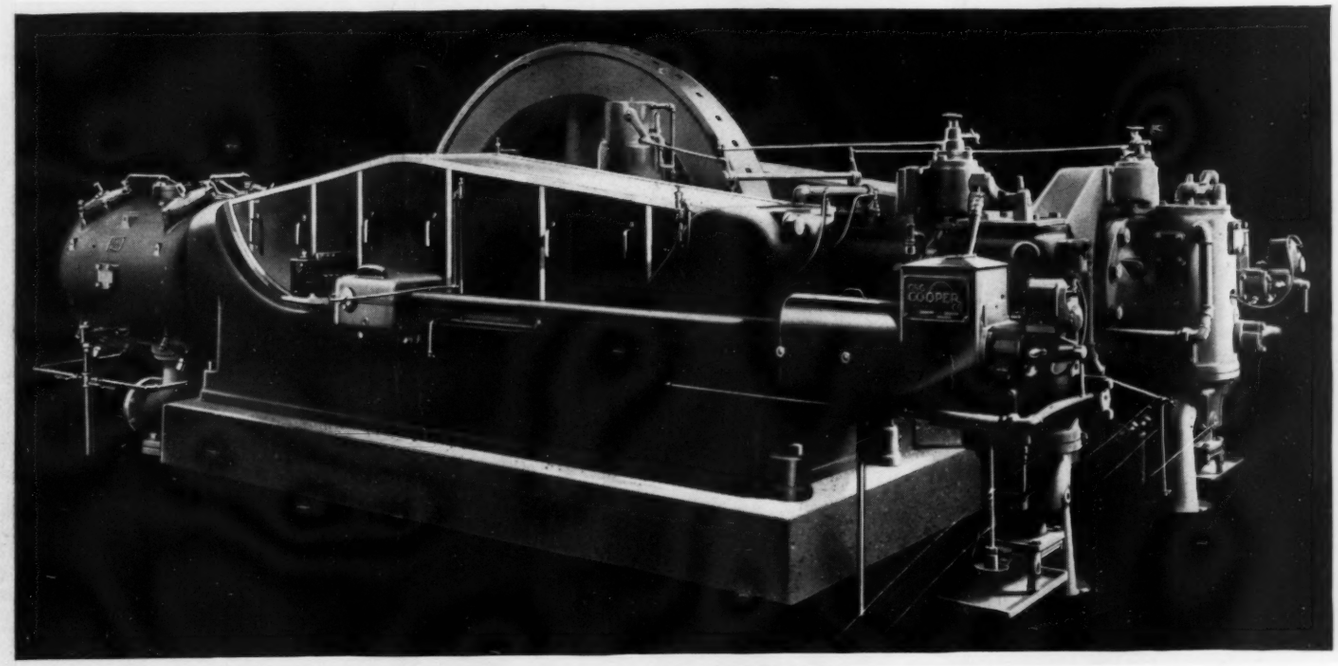
COOPER



The Cooper Type-80, built as a 170 B.H.P. twin or an 85 B.H.P. single is the development of 93 years of uninterrupted engine building experience. The guiding policy which has made such an achievement possible has always been to offer more in improved designs, in quality machinery and in field service at reasonable prices. Never has this been more evident than it is today in the Cooper Type-80 engine.

THE C. & G. COOPER COMPANY
MOUNT VERNON, OHIO

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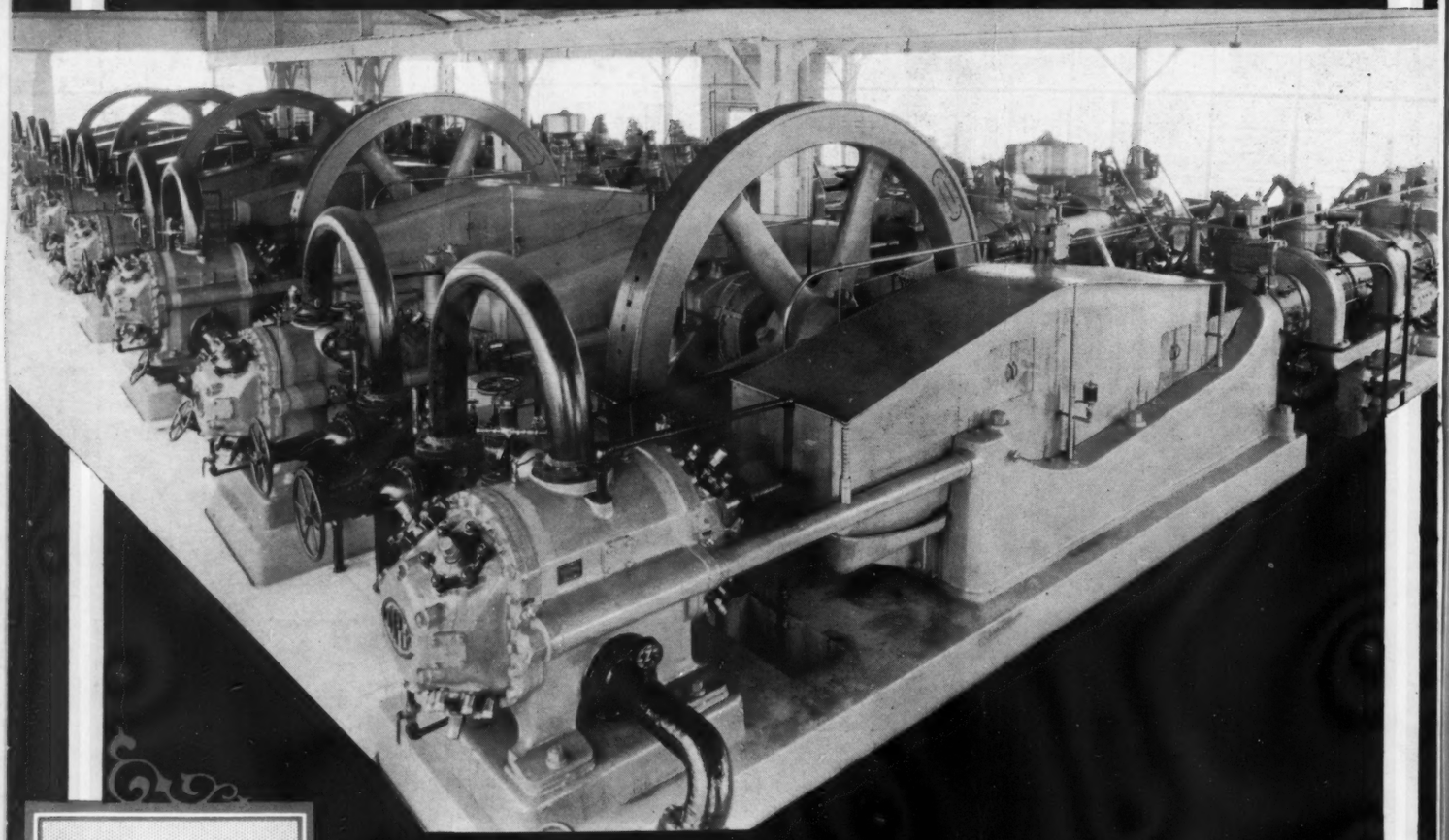
ENGINES

COOPER



The photograph shows one of Magnolia Gas Company's compressor stations with five Cooper 1000 B.H.P. gas engine driven compressors. A sixth unit is being added this year.

The engine that has done most to give Coopers their enviable present day standing is the double acting unit pictured above. It is rated at 500 B.H.P. as a single side and 1000 B.H.P. as a twin. The first engine of this type sent out sixteen years ago, is operating with all of its original main parts. Every one of the several hundred built since, is still in service. The largest gas compressing plant to be built in the country this year will contain Cooper 1000 H.P. engines.

THE C. & G. COOPER COMPANY
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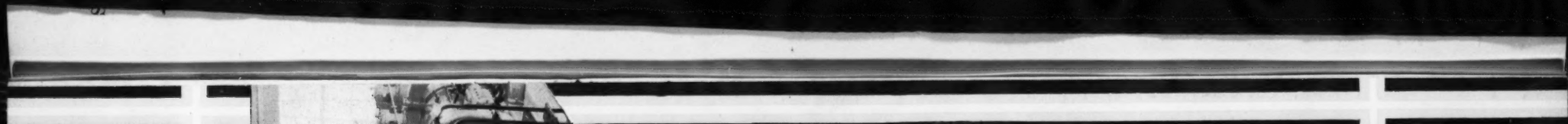
ENGINES



Answers *to the* Question: "What Is *the* Greatest Present Need *of the* Gas Industry?"

Each issue of "Western Gas" for the next several months will contain one of the three-minute speeches made at the Convention on the above subject. This month we present the three winning speeches.

By WILLIAM C. F. WEST
Winner of First Prize

I APPROACH the subject of the greatest present need of the gas industry with great fear and trembling, for if I should hit upon that need and you all agreed with me I might become famous over night.

To my mind, the greatest present need is to sell more gas during the summer months when our send-outs fall down to as low as one-fifth of the peak days of the winter months. Why is it that we have to depend on a few months in the fall and winter to meet our dividend requirements? Why not have the summer months of June, July and August pay part of our fixed charges? During a few peak days in winter, the Los Angeles Gas and Electric Corporation send-outs have gone over 100,000,000 cubic feet, and as low in summer as 22,000,000 cubic feet.

We could carry the load of three such summer days by only using our gas holder capacity and shutting down the generators altogether. But you gas men know that it would not be practical to lay off experienced gas makers and hire them back every few days.

It would be a different story if we could cut down our expenses during the summer months, but your depreciation goes on just the same. Your bond interest gets no smaller—even your gas leakage runs along at about the same percentage, and possibly a little higher than if you were sending out considerably more gas.

HOW TO DO IT

This brings us to the question of how you are going to sell more gas in the summer. To my mind, that is not only a salesman's problem, but a gas appliance manufacturing problem also. Electric manufacturing people seem to be bringing out all kinds of devices which go to increase the electric load, such as the electric refrigerators we now see on every hand, and any number of devices which you all have around your homes that are run by electricity. Maybe electricity has the edge on us for its multiplicity of uses, but are there not other ways in which we can increase the sale of gas during the summer months? Wherever we have our gas mains and there are competing fuels being used, our salesmen should use all legitimate means to put over the sale of gas with its many advantages over oil, coal and other fuels. Especially should we get after businesses which flourish in the summer, such as summer resorts, ice cream factories, and industries which could be induced to use gas during the summer and which would not need as large a quantity during the winter.

The idea *"Sell more Gas in the Summer"* is what I have to offer as the greatest present need of the gas industry, and if it has any merit my three minutes has not been wasted.

By PAUL A. PATCHEN
Winner of Second Prize

BECAUSE of the expense involved in the construction of an experimental gas plant it is impractical for even the larger companies to maintain an adequate research bureau. For this reason I believe the greatest present need of the gas industry is a national research bureau.

The purpose of such a bureau would be to solve all the puzzling problems of the gas industry, not only of a technical nature, but those of business, educational and public relations as well.

The bureau should be made up of engineers, chemists, inventors and practical gas men of long experience. They should have at their command suitable offices, well equipped laboratories and blacksmith, machine and pattern shops as well as a complete gas plant large enough for practical demonstrations and experiments.

The bureau would probably function best under the supervision of the American Gas Association, but should have a branch in each district to determine the problems peculiar to that section.

THE FIELD OF RESEARCH

The field for research work is unlimited, and properly conducted experiments should test the merits of the various types of liners, checker brick, insulation materials, valves, pipes, steel and iron castings subjected to high temperatures, protective coats for metals, etc.

There is also room for improvement in the design of plant equipment, such as measuring devices, high pressure storage tanks, waste heat boilers and pressure regulators.

The chemists could no doubt find problems of interest in the by-products or gas fuel for the future.

Perhaps a catalyst or contact agent could be discovered which would cause the reaction in the manufacture of oil gas to take place at a temperature much lower than at present required. This would tend to effect fuel economy and add to the life of refractories, generators and wash boxes as well as increase the plant capacity.

Some economic means may be found to utilize the idle plant machinery during summer months to liquify natural gas. Some success in this direction has been attained by a natural gas product commercially known as "Gasol," which remains a liquid at 70 degrees Centigrade and 400 pounds pressure. A tank eight feet long and 15 inches in diameter would hold enough liquid gas to supply an average family for one year. This product could be marketed in districts not supplied by pipe lines.

The funds for maintenance of this bureau would necessarily come from the various gas companies, and such an expense, I believe would be a good investment as research work on a large scale would undoubtedly prove beneficial to every branch of the gas industry.

Of course, these are only suggestions, and it may take years to work up a research department that would serve the desired purpose, but once the bureau is established, many problems will be presented which, when worked out by the various experts, will result in more economic production and distribution of gas.

Reprints of these Convention speeches will be furnished at cost to anyone who may desire them. A number of requests for reprints have already been made, and other orders should be placed immediately.

By W. M. HENDERSON
Winner of Third Prize

IF GAS is to be popular—its greatest need is to be modern.

Gas has been so long a necessary convenience that it is simply accepted as a part of the scheme of things. Nothing particularly is expected of gas, except such service as it has always rendered.

It burns, heats, cooks and smells; so it always has. With that, the expectancy of the people ceases, for the public is not sold an acceptance on gas.

Maybe it has been too long at the service of the community. "Familiarity breeds contempt." More likely, however, gas has been too self-satisfied and modest about its virtues, and the deadening hand of past performance has developed a state of inertia.

The public today is not so much concerned with what is good for them; rather do they desire that which will please their fancy. Folks no longer eat to live; now they live to dine out. Clothes are not considered as a protection, but rather as an attraction. Transportation is no longer a buggy-ride; now it's a joy-ride. What is new about that is all on the surface; the essential purpose is still present, but the method is simply modernized.

If gas is going to be a modern Cinderella, and come out of the kitchen to step about with society, then let it primp up a bit.

Its old virtues need not be "lifted" to make it suit the whim of our social whirl. To be modern, let it rouge up a little, with efficiency "bob" some of its conservative habits, and shed the antiquated encumberances that hang about its fair form.

MODERN DECORATIONS NEEDED

In place of custom's "hand-me-downs," let it step out and shop for modern decorations.

For instance:

Change the gas rate from $1.00 per thousand cubic feet to 10c per 100 cubic feet. It is easier to talk cents than to defend dollars.

Put forth publicity that tells what gas does: how it prepares dinner, washes dishes, warms houses—and support it with pictures of folks in comfort, with the drudgery carried on by gas.

Register prosperity, pay wages and salaries that will attract able talent, and make all jobs worthy of their keep.

Develop public relations by an application of better human relations within the industry.

Service first, credit to follow. Let not the delinquent few establish the need for the many.

Exploit new features, thus developing the junk pile as an asset.

Apply engineering research, and divorce ourselves from the homespun "cut and try" practice.

Thus, in three words rather than three minutes—*Organize, Harmonize and Modernize.*

A Convention pose of C. H. Dickey, in his element

The Thirty-Third Annual Convention

(Continued from Page 26)

the authorship of any given paper. Another special group of judges passed on the delivery of the speeches, one-third credit toward the total points allotted a speaker being given for presentation, and the remaining two-thirds of the score being judged on thought-content of the manuscript.

TOURNAMENT RETURNS

Convention golf played its part as usual, with tournaments for both men and women. Returns on the men's tournament were as follows:

Winner of Babcock-Pedersen-Basford trophy, W. S. Yard.

Winner of first flight, Ray Logue; runner-up, W. S. Yard.

Winner of second flight, F. W. Hunter; runner-up, F. H. Bivens.

Winner of third flight, Ernest Weston; runner-up Guy Barker.

Winner of fourth flight, Dan Young; runner-up S. Groin.

Winner of fifth flight, G. Schneider; runner-up, G. S. Hoyt.

Winner of sixth flight, Geo. Smith; runner-up, Barney Pedersen.

The low gross score went to Mr. Martindale, and the consolation prize to E. L. Hall. All golf prizes were awarded at the annual banquet, Friday evening, at the Vista del Arroyo Hotel, Convention headquarters. Arthur Thompson handled arrangements on the men's golf tournament.

Winners of the women's tournament were Mrs. George P. Egleston, first prize; Mrs. William Moeller, Jr., second prize; Mrs. E. G. Shattuck, third prize; Mrs. Joseph T. Sullivan, consolation prize. Mrs. H. P. George won the putting contest.

To say the final word on the Thirty-third Annual Convention it remains only to describe the annual banquet—which left a last and vivid impression with all who sat to the catering of the Vista del Arroyo chef, hearkened to the speaker of the evening, and registered pleasure at the entertainment numbers.

With President Schafer presiding, the banquet program went off per schedule. C. H. Dickey added to his store of popularity in his toast to the ladies, which he followed with a rendition of Cardinal Woolsey's farewell speech, in costume.

Officers, directors and section chairmen were introduced by President Schafer and Executive Secretary Clifford Johnstone. President-elect Yard took occasion during his speech of acknowledgement, to make offer of two awards of $50 each, which he will make personally at the next annual convention. These will go to the author of the best paper, and to the holder of the lowest gross score played during the men's golf tournament. (If an editorial interpolation may be pardoned, it is evident that President Yard's is to be a well-rounded administration.)

Lester S. Ready, speaker of the evening, and chief engineer of the California Railroad Commission, spoke on the subject "An Opportunity", and developed his theme in a way that appealed to all. His address speaks for itself, on another page of this issue of *Western Gas*.

In lighter vein came the entertainment, interspersed throughout the banquet, and ranging all the way from dancing girls, in costumes brief but intriguing, to a heavy baritone soloist. The program was in charge of "Johnnie" Wiley, who introduced the various numbers.

AWARDS TO THE DESERVING

F. H. Bivens as chairman of the committee on awards had charge of presentation of awards to those who qualified for them in the year past. Members of the awards committee were L. F. Galbraith and H. R. Basford (Commercial Section), F. E. Seaver and C. W. Johnstone (Accounting Section), Ray Fuller and M. R. Thompson (Technical Section) and H. H. Jones and F. H. Bivens (Public Relations Section).

A Pacific Coast Gas Association gold medal went to E. L. Hall for a paper entitled "Gas Manufacture for Peak Load Conditions."

To a committee consisting of K. N. Cundall (chairman), R. H. Hargreaves, Elton Hogg, Van E. Britton, M. M. Katz and Ludwig Rosenstein, for their report on "The Sulphur Recovery Process of Liquid Purification", went a second gold medal.

Honorable mention was made of the following:

A paper by Arthur F. Bridge on "The Economics of High Pressure Storage." A paper by L. C. Haffner entitled "The Relation of the Industrial Load and the Tariff Schedule." Don C. Ray's paper on "Applied Public Relations."

Two papers prepared for the general session held Friday afternoon of Convention Week also secured honorable mention. They were "Gas Company Merchandising", by C. B. Babcock; and "The Advantages Derived and the Equity Resulting from a Tripartite Form of Gas Rate Schedule", by Rudolph Jenny. Mr. Babcock's paper is published in this issue.

The much-fought-for Basford trophy was conferred upon the Commercial Section, of which C. M. Grow is chairman.

Those who made up the general committee for this convention of conventions were: W. M. Thompson, chairman, F. H. Bivens (hotel accommodations), F. C. Ingram (dinner entertainment), H. J. Kister (transportation), E. W. Langdon (Catalina trip), Jay E. Jenkins (publicity), Norman McKee and W. D. Dickey.

"Dan" Scott served as editor of "Balloon Juice" and chairman of the luncheon programs.

Mrs. Norman McKee was chairman of the women's entertainment committee.

L. H. Dell handled Convention registration and information without a hitch and found time to work with the stunt committee for luncheon programs as well.

Clyde H. Potter contributed effective service in connection with Convention publicity; and Geo. S. Campbell gave valuable service on the transportation committee.

Thanks is due the local gas companies, and the contributing firms whose funds helped to make possible the thorough convention arrangements.

Gas Ripens Bananas *for* Portland Produce Firm

THE industrial gas engineer who sleeps on the switch may not cause a wreck but he does not create any new business either. Therefore, the industrial engineer must always be on the alert to adapt ideas developed by scientific investigations to his own field. An investigation conducted in Germany showed that green oranges exposed to ethylene gas can be ripened in a short time. Although there is ethylene gas contained in the gas manufactured by the Portland Gas & Coke Company there is too little available for the above mentioned purpose. Nevertheless this scientific news note opened a new aspect on the question of fruit ripening. The Ryan Produce Company of Portland, Oregon, was persuaded to expose unripe bananas to the products of combustion of gas and it was found that the bananas ripened in 48 to 72 hours under the influence of carbon dioxide, moisture and heat produced by burning gas in the air-tight ripening room. An additional advantage of this system is a slight gain of weight whereas they used to shrink when ripened by means of steam heat.

Fruit is a living organism and since its growth depends on heat, carbon dioxide and moisture it was argued that gas would provide these three items nicely, which contention was borne out by actual results.

GAS FURNACE INSTALLATION CODE NOW AVAILABLE

Geo. Finney, secretary-treasurer of the Gas Furnace Association of Southern California, announces that the Association has completed preparation of its "Standard Code for Gas Furnace Installation." Copies may be had by addressing the Association secretary at 635 Chamber of Commerce Building, Los Angeles.

BENZOL PLANT SHOWS PROFIT; EASTERN SHIPMENTS MADE

The Portland Gas & Coke Company is having no difficulty in disposing of all of its benzol. Large shipments of the surplus not sold in Portland as motor fuel are being made to the Atlantic Coast where it is blended with gasoline and sold at a premium over other motor fuels. The operation of the benzol plant has proved very profitable and the unit costs have proved much lower than the original estimates on which the decision to build the plant was based.

DEMONSTRATIONS FEATURE PACIFIC GASOLINE CO. MEET

An August 10 meeting of the southern division foremen of Pacific Gasoline Company was given over to demonstrations by members of the gas department and covered gasoline distillation, gas sampling by Orsatt Test, oil enrichment determination and gas sampling by the charcoal method with an explanation of meter action. Messrs. Thompson, Anspach, Newton and Pohlman were the demonstrators.

CELEBRATING 50TH ANNIVERSARY OF WORK IN GAS INDUSTRY

S. F. Hayward of the Connelly Iron Sponge and Governor Company, New York. celebrated the 50th anniversary of his connection with the gas industry by coming to Pasadena for the P.C.G.A. Convention. Mr. and Mrs. Hayward are touring the West, stopping in Portland, Seattle and Yellowstone Park.

PORTLAND BAKERS TURN TO GAS FOR FUEL

The new type Gasco bake oven has found favor with the Portland bakers to such an extent that the Industrial Division of the Portland Gas & Coke Company has been able since January, 1926 to dispose of 12 new Gasco bake ovens. Furthermore, nine ovens of a previous type were converted to the new type. The combined capacity of these ovens is 2500 loaves output per hour, or 25,000 loaves per day.

NEW GARAGE FOR SO. COUNTIES AT SANTA ANA PLANT

A new garage and store room structure has been opened by the Southern Counties Gas Company at its Santa Ana plant. C. E. Rutledge, district manager for Orange County, held a formal opening on August 18, at which more than 300 company employees were present.

DISTRIBUTE COMPANY BOOK AT CONVENTION

September issues of *Gas News*, official publication of the Southern California Gas Company and the Midway Gas Company, were distributed at the Pacific Coast Gas Association Convention. The September issue was a Southern California number, with many views of gas properties and related scenes.

Foundations Laid *for* New Generator Building

DURING the past month, the Portland Gas & Coke Company have completed 266 Raymond Concrete piles under the site of a new generator building. The piles installed are somewhat different from the usual Raymond Standard Pile in that each pile is provided with an extension on the top to obtain the desired length. The maximum length which the Raymond concrete pile can be driven is 37 feet and in order to have all piles resting on bedrock, reinforced concrete extensions were placed on each pile approximately 10 feet long.

As soon as pile-driving operations were completed, a test was made on one of the piles to ascertain its bearing value. The pile was tested by applying a sand load of 120,000 pounds and showed a maximum settlement of one-quarter inch.

The foundations for the building and generating apparatus are now being installed. The building will be of sufficient size to accommodate four gas generators having a capacity each of 5½ million cubic feet. In designing the building a temporary end wall is provided so that future extensions can be added to take care of company growth.

EXTENDING GAS SERVICE TO ROSEVILLE, CALIF.

The Pacific Gas and Electric Company will apply to the city authorities of Roseville, Calif. and Placer and Sacramento Counties for franchises to extend gas mains to serve Roseville and contiguous territory. H. M. Cooper is division manager of the company, with headquarters at Auburn.

Upon receipt of the franchises and a permit of public convenience and necessity from the Railroad Commission, the company will proceed to extend a high pressure transmission main along the highway from the end of the Company's present main in North Sacramento.

Gas will be served from the Sacramento plant at high pressure. It is estimated that approximately 1,500 residents of Roseville will avail themselves of the new service and 160 customers will be taken on en route. The North Sacramento-to-Roseville extension will involve an expenditure in excess of $250,000. Twelve miles of six-inch high pressure transmission main will be laid, at an an estimated cost of $5,280 per mile. In the city of Roseville, 1,560 domestic and 71 industrial consumers will be secured. Fifteen miles of secondary mains will be laid with services and meter connection involving an expenditure of approximately $100,000.

PAUL VECKER HAS SONG, BY NAME "GAS, GAS, GAS"

S. Paul Vecker, vice-president and general manager of the Panama-Colon Gas Company, has turned composer. His gas man's song hit, "Gas, Gas, Gas," says Mr. Vecker, represents a medium of advertising gas in the States.

"MOUNTAIN STATES OIL INDEX" COVERS GAS INDUSTRY ALSO

A. J. Hazlett, editor of *Inland Oil Index*, published at Casper, Wyo., has announced publication of a trades directory for oil, gas and allied fields, called the "Mountain States Oil Index."

STANDARD ENGINEERING HAS EVANSVILLE PLANT

Standard Engineering Company has practically completed a gasoline absorption plant located at Evansville, just east of Casper, Wyo., which will operate on gas from Teapot Dome, carried through the pipe line of the New York Oil Company.

WASTE HEAT VALVES STAND UP WELL FOR PORTLAND

Examination of water-cooled waste heat valves furnished to the Portland Gas & Coke Company by the Blaw-Knox Company after a years service shows practically no deterioration. In laying plans for new generators for installation in 1927 it has been decided to use this type of valve in connection with waste heat boiler with some slight modifications which have been found advisable. Some difficulties were experienced with the refractory brick lining of the horizontal waste heat flues, but these have now been overcome.

CITIES SERVICE EARNINGS SHOW INCREASE

Cities Service Company's $2,245,979.02 gross earnings for June 1926 were the largest gross for any June in the history of the company. Net earnings were $2,163,-006.17, the largest net for any June in the history of the company. Net to stock and reserves was $1,932,070.41, the largest for any June in the history of the company.

NEW SAFETY ENGINEER FOR PACIFIC GASOLINE CO.

Pacific Gasoline Company has a new Safety engineer in its Northern division. G. M. Liljenstein has taken the place of E. P. Turner, former safety engineer, who is now in the department of design.

GAS CO. ROAD BINDER PROVES POPULAR IN NORTHWEST

More than 100 miles of road in Oregon will have been treated in 1926 with the Portland Gas & Coke Company's Gasco Road Binder. Reports of Highway Engineers are most encouraging and it is believed that 1927 will see a large increase in mileage treated. Engineers in other Northwest States are watching the trails with great interest and will be in the market next year if expectations are realized.

The motorists are bringing very strong pressure to bear on the Highway Commission of the State of Washington to undertake an extensive road surface treating program.

GAS KETTLES MELT ASPHALT FOR PORTLAND CONSUMERS

That gas is the ideal fuel for melting asphalt and other bituminous materials is demonstrated by the fact that the King Brothers Boiler Works recently installed a 4′ by 34′ kettle to melt asphalt for dipping hydraulic pipe. The magnitude of this kettle will be illustrated by its capacity, namely, 28 tons of asphalt. The hourly consumption is approximately 2,000 cu. ft.

Even though this kettle is large it is not the largest one used in the city of Portland; the Steel Tank & Pipe Company operates a battery of 4′ by 38′ by 6′ kettles for a similar purpose as that outlined above. These kettles contain 30 tons of melted asphalt. This installation has been in operation two years and has used as high as two million cubic feet of gas per month.

California Natural Gasoline Association

Items of interest to members and to the natural gasoline industry at large

OFFICERS

PAUL D. BARTON.....President
J. A. CAMPBELL.....Vice-President
J. S. WATSON.....Secretary, Box 237, Long Beach, Calif.

EXECUTIVE COMMITTEE MEMBERS

R. E. Beckley
Geo. L. Radcliffe
D. A. Cushman
I. B. Funk
H. L. Eggleston
R. W. Garman

The three officers are also on the Executive Committee.

Meetings of the Executive Committee are held on the second and fourth Wednesdays of each month. The general membership meeting is held the third Wednesday of each month.

Date for the next meeting of the general membership is announced for September 15. Detailed announcement will be sent to each member by the secretary.

Attendance at the August 18 evening meeting at Paulais, Los Angeles, surpassed the rosiest expectations of everyone, 106 being present, as compared with 71 at the last general meeting.

With the business session, consisting of announcements, reports of committee chairmen, etc., out of the way the following three papers were presented:

"Methods of Treating Water for Use in Natural Gasoline Plants", read by F. M. Beeson, a guest of the Association for the evening, and a representative of the Luitwieler Pumping Engine Company.

"Testing of Absorption Oils by Pressure Distillation", by J. J. Delaney, General Petroleum Corporation.

"Testing Absorption Oils in Natural Gasoline Plants", a subject allied to the preceding paper, and presented by E. D. Cumming of the Shell Company.

Mr. Beeson's discussion of water treatment was of interest to both technical men and operators, considering the vital nature of the subject. The paper appears on another page of this issue of *Western Gas*.

The two papers on absorption oils were discussed together following their presentation. Mr. Cumming's paper dealt with condensation of the light fractions which are lost in the usual distillation test, by use of a low temperature condensor (minus 80 degrees C.) The method described by Mr. Delaney attempts the recovery of lighter fractions by distilling at 30 pounds pressure. The interested discussion excited by these two papers is not to be wondered at, since efficiency in absorption plant operation centers in the absorber. The condition and quality of the absorption oil is patently the limiting factor in the recovery process.

Paul Barton, president of the Association, announces that henceforth it will be the aim of the program committee to arrange programs sufficiently far in advance that announcement may be made in these columns. This should make for effective discussion of papers, it is felt. To aid in securing thorough discussion it is planned to have certain members come prepared to discuss the subject in hand after presentation of the paper, and to lead a general discussion. A stenographic record of all discussion is to be made during the meeting, and members will receive copies of the proceedings. Much valuable reference material will be made available through this policy.

H. L. Eggleston, chairman of the committee on safety and fire prevention, has announced the completion of his committee and the formulation of a plan of work.

Shall the California Natural Gasoline Association develop a social side? This suggestion was thrown into the meeting of August 18, and is receiving the consideration it merits, with the possibility that members will turn to something to lighten up the seriousness of technical research, in which field the Association is functioning very effectively.

Methods *of* Treating Water

(Continued from Page 40)

New Jersey. There is also a deposit of clay Zeolite of more or less known quantity which has been worked for some time past in Western South Dakota. This deposit, when processed, works up into what is termed a combination of classes—(1) and (6) natural porous, while the green sand is a combination of classes (1) and (7) natural nonporous.

ABUNDANT AMERICAN DEPOSITS

Synthetics have received a great deal of attention from the American manufacturers, particularly before the American naturals were discovered, as at that time it was thought that all the available supply was in Europe. However, the American deposits have proven to be equal if not superior in quality to any foreign deposits and a sufficient quantity has been discovered to supply our requirements at the present rate for something over three million years (more or less) so that no anxiety need be expressed over an immediate shortage of this commodity.

While the purification of water by this process is more or less recent, yet this form of water softening was the subject of investigation as early as 1850. Present available figures would indicate that the proper salt requirements were approximately one-half pound of sodium chloride (salt) per one thousand (1000) grains of hardness exchanged. On actual test and under ideal laboratory conditions as low as four-tenths pounds have been obtained. However, there is a tendency to starve the mineral if too small a quantity of salt is fed, since it must be remembered that for every grain of sodium that is exchanged by the Zeolite, likewise one grain must be replaced, so it may easily be seen that if we do not feed the mineral the proper amount of sodium, it cannot give the proper exchange, and since salt is only one of the expenses, it has been found advisable in actual practice to feed about one-half pound per 1000 grains of hardness exchanged, thus reducing labor, wash water and overhead charges to a minimum per thousand gallons of water softened.

CAUSTIC EMBRITTLEMENT

The latest and probably the most discussed phase of water softening for boiler feed at least, and probably the one point upon which there has been less real information given is the item of "Caustic Embrittlement." The writer has been more or less of the opinion that this item, if it can be so termed, was more or less exaggerated by some. However, late developments and experiments carried on by eminent authorities tend to prove some foundation for this theory and in recent articles, "Caustic Embrittlement" has been more or less established as an actual fact and the writer believes that it should be given serious consideration. In this very important requirement for soft water, we believe much constructive work can be done by the boiler manufacturers in new boilers in preventing this destructive action. This, of course, will not stop this action in our present installations, so that some preventive measures must be pursued in connection with the existing plants.

Anyone still doubting the existence of this destructive agency will do well to read the very interesting article in the June 29th, 1926, issue of "Power" by Prof. S. W. Parr, Prof. of Applied Chemistry, and Mr. F. G. Staut, Special Research Assistant, University of Illinois, from which we quote:

"The real cause of embrittlement in steam boilers can be summarized therefore by saying, it is due to a concentration of caustic soda in the seams in the absence of much sulphate or carbonate and the existence of localized stresses.

"Since embrittlement is the result of the combined action of chemicals and stress on the metals, it appears possible to stop it by one of two methods,—reduce the stress or remove the chemicals.

"The removal of the stress is not to be considered in commercial installations, and if it were possible, could not be applied to existing plants.

"The use of inside caulking or welding will tend to reduce the seepage into the seams and to retard the occurrence of this type of stress.

"The removal of the Sodium Hydroxide by changing waters would therefore seem the most logical and effective method of removing this trouble. Of course, in some instances, this is not possible, and in other instances would produce other complications."

It would, therefore, appear that each installation must be treated separately and conclusions arrived at after fully considering all factors.

LONG LIFE FOR GAS MAINS IN PORTLAND

An investigation recently undertaken by the Portland Gas & Coke Company indicates that the life expectancy of steel pipe in the company's distribution system is considerably in excess of the generally accepted life period. Pipe samples of different ages were selected from various parts of the system and carefully measured to determine the corrosion which had occurred. The ultimate life periods calculated from the percent penetration and the age of each installation averaged over fifty years.

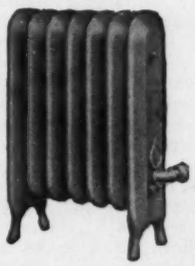
POTTER Heating

For many years POTTER Engineers have pioneered the way in the advancement of modern Gas Heating Systems. They have developed Gas Heating to such a degree of perfection that today, POTTER Products have become a standard of comparison wherever dependable, safe, economical and healthful gas heating is discussed.

OUR BEST ASSET

The tens of thousands of satisfied customers that our Organization has made through POTTER Gas Heating installations, is a JUST tribute to a satisfactory product—a gratification to conscientious effort.

THERE ARE MANY REASONS WHY IT IS BETTER TO INSTALL POTTER SYSTEMS

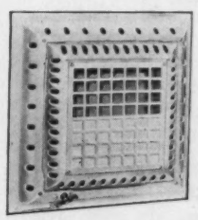


"POTTER" Vented Radiators

Only POTTER has these 7 POTTER Features

(Cast Iron and Steel-Made)

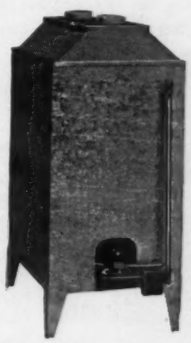
1. Condensation abolished. This does away with corrosion. Many years are added to the life of the Radiator.
2. Triple Circulation. The heat goes into the room, not up the flue.
3. Uniform warmth distribution. The air is never "cooked."
4. Quick heat. No other radiator heats so quickly as the light, efficient POTTER Steel-Made.
5. Aristocratic appearance. The POTTER Cast Iron Radiator is selected for the finest and largest homes.
6. Totally odorless always.
7. Not expensive.



"COLE" Floor and Wall Heaters

Made in heavy solid cast aluminum.

COLE is the only furnace manufactured that can be installed on either the first or second floor.



"MAGIC WAY" FURNACES

"MAGIC WAY" was the first, and has always been considered the leading Unit System of heating.

The principle of Unit Heating of modern buildings, brought to its present state of refinement through the study and efforts of this Organization, is based on the principle of an individual furnace or heater for each room or group of rooms to be heated.

This type of installation allows accurate temperature control in each room, regardless of the demand in other sections of the home.

POTTER quantity production now makes "MAGIC WAY" with electric controls, available to anyone who desires a gas furnace system.

The same features that make these well known POTTER-made appliances favorites with home builders and home owners, make them popular with churches, schools, theatres, auditoriums and factories.

The low cost of adequate heating by means of "MAGIC WAY" Vented Furnaces of either the Unit or Central Plant type, will be a revelation.

"MAGIC WAY" VALVES

By merely pressing a button, the temperature of any room may be regulated. This valve not only turns the heat on but it regulates the heat to suit your exact wants.

"MAGIC WAY" Floor Furnace

When the furnace type of heat is desired at low cost or when a basement is not available, use "Magic Way" Vented Floor Furnaces.

Potter Heating Includes:

"MAGIC WAY" UNIT FURNACES
"POTTER" GAS RADIATORS
"STEEL-MADE" GAS RADIATORS
"COLE" FLOOR AND WALL FURNACES

There Is a **POTTER System** for Every Need

POTTER RADIATOR CORPORATION

San Francisco—Oakland—Los Angeles—San Diego

NATURAL GAS GASOLINE OPERATIONS

Compiled by J. W. MASHAW

Department of Commerce, Bureau of Mines, Division of Mineral Resources and Statistics

ONE hundred and forty-six natural gas gasoline plants, with a daily indicated capacity of 1,151,019 thousand cubic feet, report a recovery of 33,167,339 gallons of natural gas gasoline from 24,080,007 thousand cubic feet of gas treated, in July. This is an increase of 619 barrels in daily average production. Sixteen natural-gas gasoline plants with a daily capacity of 91,043 M.C.F. report as being shut down this month.

Utilization of natural-gas gasoline amounted to 762,639 barrels, an increase over June of 10,056 barrels. Daily average utilization of 24,601 barrels was 873 barrels less than daily average production of 25,474 barrels.

Stocks of natural-gas gasoline at the end of July amounted to 218,249 barrels of which 25,508 barrels were reported by natural-gas gasoline plant operators and 192,741 barrels by refinery operators. This is an increase of 27,060 barrels over June stocks. This stock figure of 218,249 barrels is approximately nine days' supply at the current rate of consumption.

Production of gasoline during the month of July amounted to 3,899,264 barrels, a daily average of 125,783 barrels. This is an increase of 60,289 barrels or 1.57 per cent over the June output and 434,611 barrels or 12.54 per cent over the output of July 1925.

Of the gasoline produced 5,160 barrels were reported as finished gasoline produced by natural-gas gasoline plant operators. Stocks of gasoline show a decrease of 129,926 barrels during July and at the end of the month amounted to 9,731,973 barrels. This stock figure includes 621 barrels of finished gasoline reported by natural-gas gasoline plant operators.

CALIFORNIA NATURAL GAS GASOLINE PRODUCTION, DISTRIBUTION, AND STOCKS
July, 1926

PRODUCTION

Type of Plant	*Gas Treated M Cu. Ft.*	*Natural Gas Gasoline Produced Gallons*	*Gasoline Recovery per MCF Gas Treated*
Oil Absorption	15,644,780	21,651,389	1.384 Gal.
Compressor	321,478	542,604	1.688 "
Combination Comp. and Oil Absorption	3,812,594	6,217,150	1.631 "
Combination Oil and Charcoal Absorption	2,884,637	4,616,123	1.600 "
Charcoal Absorption	1,416,518	133,083	.094 "
Drip	.....	6,990	.....
TOTALS	24,080,007	33,167,339	1.377 Gal.
Finished Gasoline produced at plants			5,160 Barrels

DISTRIBUTION

Stocks first of month	.....	181,189 Bbl.
Production during month	.....	789,699 "
Quantity mixed with crude or unfinished oils	288,811 Bbl.	.....
Used in blending at refineries	278,662 "	.....
Stocks end of month	218,249 "	.....
Used at Plants, Shortage and Evaporation losses	14,830 "	.....
Balance	180,336 "	.....
TOTALS	980,888 Bbl.	980,888 Bbl.

STOCKS

Natural-gas gasoline held by Natural Gas Gasoline Plant Operators	1,071,351 Gal.	or 25,508 Bbl.
Natural-gas gasoline held by Refiners	8,095,127 "	" 192,741 "
TOTALS	9,166,478 Gal.	or 218,249 Bbl.
Finished Gasoline (Motor Fuel) held by Natural-Gas Gasoline Plant Operators		621 Barrels

Gas Appliance Society Annual Meeting

GEORGE GLANS, of the McKenley-Glans Furniture Co., San Jose, was selected to head the Gas Appliance society of California, in its seventh semi-annual convention, held in connection with the fall Furniture Market, and coincident with the convention of the Retail Furniture Dealers Association of the state.

On Wednesday, Aug. 11, the G. A. S. held its meetings. In the afternoon the members of the state Advisory Board gathered in the Furniture Exchange, and in the evening of the same day a joint banquet was held to which were invited all of the members of both the Furniture dealers and the Gas Appliance organizations.

The usual reports from the Unit Chairmen occupied a major portion of the time in the afternoon session of the Advisory Board.

Clifford Johnstone, Secretary of the Pacific Coast Gas Association, outlined the Blue Star Plan of the American Gas Association. He also urged that the Society request all of its manufacturer members to submit their appliances to the A.G.A. laboratory for test.

HEATING CAMPAIGN APPROVED

A fall Heating Campaign, which is to be launched Sept. 19 to 25 and which is to continue with intensive sales effort and exhibitions during the four months following, was approved by the Board. In this campaign gas-fired furnaces and also individual room heating appliances will be featured.

Other plans for future activities were discussed, among them the model ordinances that are being urged on the various municipalities. It was apparent that within a short time ordinances governing the installation and requirements of heating apparatus will be passed in San Francisco, Oakland, Sacramento, San Jose and Fresno.

The officers of the Society, as selected by the Board, and later approved by the membership, include: president, George Klans, San Jose; vice-president, M. S. Barnett, San Francisco; secretary (re-elected) F. U. Naylor, San Francisco. These three mentioned and George Egleston, L. J. Bruener and M. F. Wales will constitute the executive committee.

At 6:30 P. M. the joint dinner at the Clift hotel brought out an attendance of nearly 150. The program for this meeting, in addition to dinner and entertainment features, included the report of the afternoon session of the State Advisory Board, and two very interesting and instructive talks.

Frank H. Beckmann, of the Beckmann Hollister Company, spoke on the subject of "Salesmanship." Mr. Beckmann concerned himself chiefly with discussing the value of personality as an asset in selling. He explained in a most convincing manner that the personality that is reflected in a store as an institution is nothing more or less than the mean average of the personalities of all those individuals in the organization with whom the public comes in contact.

Richard M. Neustadt, managing director of the San Francisco Retail Merchants Association, and president of the San Francisco Ad Club, was the second speaker of the evening. He took the subject of "Merchandising" and reduced it to terms of gas appliance sales effort. He stressed the point that at the present stage of commercial development, the greatest problem facing the manufacture is his distribution. Manufacturing practices have been well standardized, costs have been reduced and economical methods of production have become general. Yet the problem of getting the finished product into the hands of the ultimate consumer is still, in many instances, as haphazard and unscientific as in the days of barter and exchange.

After a few remarks by the retiring president, L. J. Bruener, and president-elect George Glans, the meeting adjourned.

GAS STOVE DEPARTMENTAL

One of the Departmentals of the Retail Furniture Dealers Association concerned itself primarily with Gas Stoves, and this section held its separate meeting in the Palace Hotel on Monday night, August 9th, with Guy Farwell as chairman.

E. G. Campbell, assistant superintendent of gas distribution for the P. G. & E., spoke on the proper installation of a gas stove as a necessary adjunct to a satisfactory sale. His suggestions covered piping, flues, location of the stove, and proper adjustments to insure maximum efficiency of operation.

SPEAKER ON RANGE OPERATIQN

Mrs. R. D. Withers, director of the Home Service Bureau of the same company, followed with some practical suggestions on the care and operation of a gas range—suggestions designed for the dealer to pass on to the housewife at the time he makes the installation.

Mrs. Withers stressed the importance of care in handling a new piece of equipment so that the finish of the enamel or metal is not permanantly marred, and also pointed out to the manufacturers and their representatives the absolute importance of having the oven temperature regulators correctly adjusted. A difference of 25 deg. on the regulator, she said, means a full hours difference in cooking time.

Both speakers answered numerous questions on their respective topics, following which the meeting adjourned.

"I'm getting most of the heating business in my town-

because-

"I've got the right appliances to fit every type of building!

"My competitors have only one or two types of appliances to sell. That automatically limits them to a certain class of buildings.

"But **every** building job is a live prospect for me. All the architects, builders and owners know that they can count on me for dependable heating advice. I'm not trying to sell an appliance that won't fit the job.

"From my complete line of Pacific Gas Heating Appliances I can select exactly the types needed for each job. And every Pacific appliance has exclusive features which give me a strong selling talk.

"I'm getting most of the business because I'm in on **every** job—because I can supply **every** demand—and because everybody knows that my line of Pacific Gas Heating Appliances can't be beat on quality."

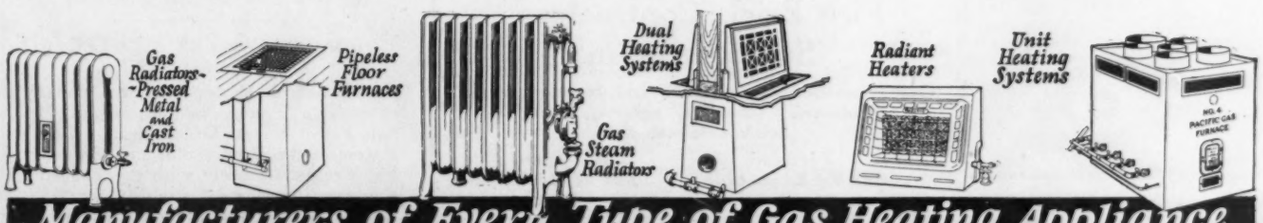
If you'd like to get MORE of the heating business in your section—write for the Pacific Agency proposition, NOW!

Pacific Gas Radiator

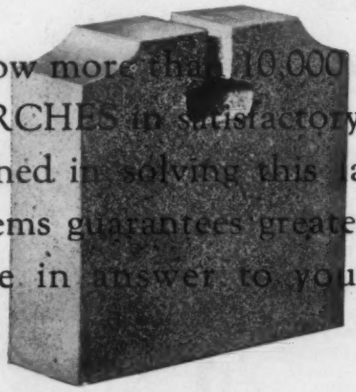
Gas Heating **Company** *Headquarters*

Phone BEacon 2190

1732 West Washington St. **Los Angeles, Calif.**



Manufacturers of Every Type of Gas Heating Appliance



There are now more than 10,000 installations of DETRICK ARCHES in satisfactory service. The experience gained in solving this large number of furnace problems guarantees greater efficiency and lasting service in answer to your own furnace problems.

M. H. Detrick Company

Board of Trade Bldg.
Portland, Ore.

New Call Bldg.,
San Francisco, Calif.

Chicago
140 S. Dearborn St.

New York: 50 Church St.

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Chas. C. Moore & Co. Engineers, Inc.

CONTRACTORS FOR COMPLETE PLANTS

High Grade Machinery

The Babcock & Wilcox water tube boilers
Corliss high speed and poppet valve engines
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Hamilton compressors
Green fuel economizers
Wheeler Condenser & Engineering Co. condensing machinery
Cochrane feed water heaters (open and closed)
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Griscom-Russell Heaters, Evaporators, Distillers, Multi-Whirl Coolers
Moore automatic fuel oil regulators
Diamond soot blowers
Lagonda tube cleaners
Copes feed water regulators
Lagonda automatic boiler stop valves
Leslie reducing valves

And All Power Plant Auxiliaries

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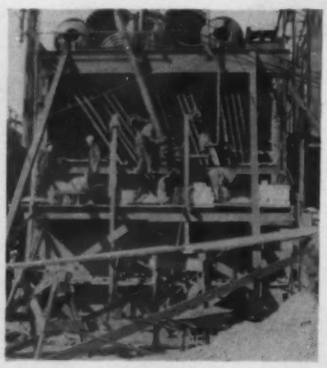


Brick work in progress—boiler installation L. A. Gas and Electric Co.

Any Place In The West

Established 1906

J. T. Thorpe & Son

Inc.

Fire Brick Contractors
Specializing in

Gas generator, boiler, still and furnace brick, industrial furnaces, retorts, kilns, brick smokestacks.

Portland
632 Ry. Exch. Bldg.

Los Angeles
321 W. 3d St.

San Francisco
417 Market St.

Seattle
468 Stewart Bldg.

A. B. Macbeth

The West Leads

IN his address on "The Future," presented at this year's convention of the Pacific Coast Gas Association, at Pasadena, A. B. Macbeth, nominee for the presidency of the American Gas Association, spoke some significant words on the increase in gas sales in Pacific Coast and Rocky Mountain States. Following is the excerpt referred to, taken from the conclusion of Mr. Macbeth's address:

"Referring to our own section of the country, for the year 1925, the Pacific Coast and Rocky Mountain States regions showed a percentage increase in gas sales over 1924, three times as much as the largest percentage increase shown by any other section of the country.

"Pacific Coast leads the country in the progress made in increase in the house heating and industrial load. Statistics show that for the country as a whole the industrial load represents approximately 25% of the total sales. An analysis, however, of the sales of the Pacific Coast gas companies, representing some 75% of the total gas sold in this section, shows that for the year 1925, the industrial sales represented approximately 42% of the total sales of gas.

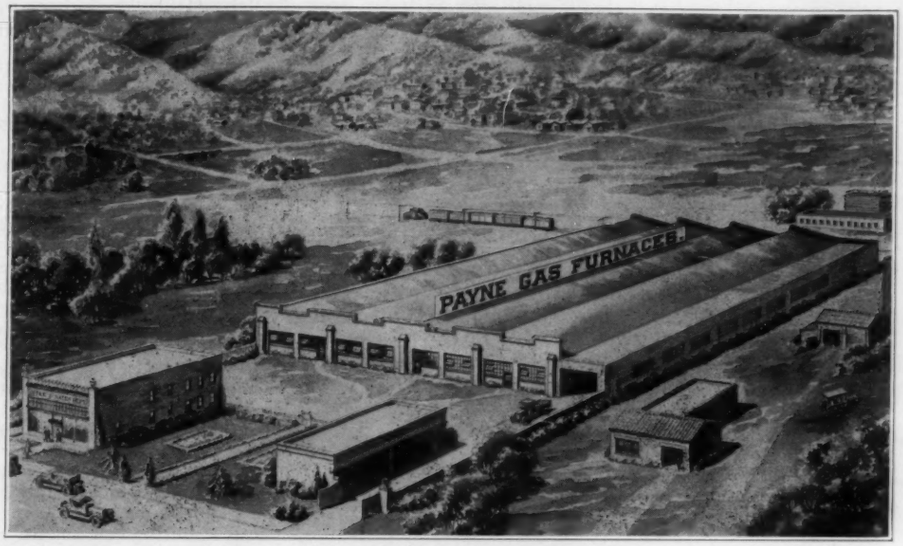
"The gas men of the Pacific Coast may congratulate themselves not only on a ratio of increased sales greater than the rest of the country, but particularly on the fact that we are leading the van in securing the maximum percentage of the business that should come to us from the industries."

BEACON WATER HEATER CO. CHANGES LOCATION

The Beacon Water Heater Company announces a change in location to 776 So. San Pedro Street, Los Angeles. George F. Pearse is the manager of the company. W. Ph. Treide, formerly with the Beacon Light Company, is located with Mr. Pearse. Mr Treide is carrying a complete line of gas burners, parts etc.

The GAS COMPANY *and the* HELPING HAND

It's a poor rule that doesn't work both ways



The Payne Factory—Gas Furnaces Exclusively

IT has been the policy of many manufacturers to enlist the help of the gas companies in the sale of their products.

Our policy is to help the gas companies increase their heating load in such a way as to make friends and satisfied customers for the company. We are doing this today through more than 30,000 gas furnaces on the Pacific Coast actively registering on gas companies' meters.

May we co-operate with you in acquiring more and better heating business? Let us tell you our plan.

PAYNE FURNACE & SUPPLY CO. INC.

Main Office, 338 Foothill Road, Beverly Hills.
Branch, 2247 Grove St., Oakland, Calif.

The Big Enemy of the Gas Company

is the unvented Gas Heater

The profits of a Gas Company are not derived from the sale of Heaters, but from the continued sale of Gas.

Users of unvented Gas Heaters will, sooner or later, when the truth is known, discontinue their use and condemn Gas generally.

Co-operate with your City Officials in passing ordinances requiring vents for all Gas Heaters; such ordinances will be to your financial benefit and help insure the health of the public.

Recommend only the ventilating type of Gas Heaters.

Beware lest the work of forty years in educating the public to the use of Gas be undone.

The competitors of the Gas Company—Coal, Wood, Oil and Electricity—are still "on the job" with improved Appliances.

We have been manufacturing Lowe Ventilating Gas Heaters for fifty years and they are the kind that continue to sell Gas and give utmost satisfaction to their users. Write for circular.

Lowe Heater Works

1104 Mission Street **South Pasadena, California**

ANNOUNCING

A Complete, Dependable Line of Industrial Instruments and Steam Specialties

The Foxboro Co., Inc.—Orifice Meters, Recorders, Controllers, Etc.
Charles Engelhard, Inc.—Electric Pyrometers, Thermometers, Etc.
Union Water Meter Co.—Water and Oil Meters, Fire Whistles, Etc.
A. E. Moeller Co.—Thermometers, Hydrometers, Barometers, Etc.
Locke Regulator Co.—Steam Specialties and Regulators
Star Brass Mfg. Co.—Globe, Angle and Check Valves
Davis Engineering Corp.—Paracoil Steam Traps
Lewis M. Ellison—Draft and Air Filter Cages

JENSEN INSTRUMENT CO.

443 S. San Pedro St. **Los Angeles**

Approaching *the* Ideal Gas Manufacturing Process

(Continued from Page 38)

units at a cost perhaps as low as any process now in use in this country.

We have been favored in Denver with conditions that allowed us to pioneer to a greater extent, perhaps, than most cities in the United States. We have not been hampered with regulatory restrictions, and have therefore been free to develop our business along the lines of greatest economy, both to the customer and the company.

PRESENT PLANT EQUIPMENT

The generating equipment of the Denver plant now consists of 52 full depth benches, containing six horizontal retorts each, four 11-foot and two eight-foot six-inch carburetted water gas machines. Gas coal is obtained from mines in southern Colorado, about 200 miles distant from Denver, and gas oil is obtained from Wyoming refineries at about the same distance. Our output in the year 1925 consisted of 45 per cent coal gas and 55 per cent carburetted water gas, although on the peak day the proportions were 29 per cent coal gas to 71 per cent carburetted water gas. The amount of coal gas made is limited principally by the available market for coke, the latter being affected, to a large extent, by the low priced lignite fuel in general use. The most economical method in our situation seemed to be one in which coal would be used as the principal gas making material and in which complete gasification of the coal would be approached.

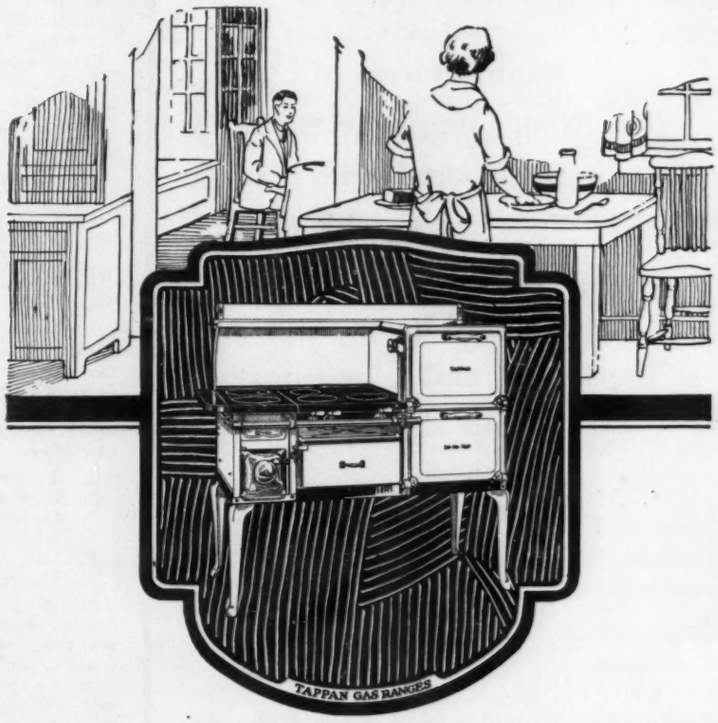
Our engineers were given the problem of working out a method of gas production for Denver early in the year of 1925 and their report was completed, checked and accepted by the holding company engineers and the investment authorized by the Finance Committee later in the year.

TO AVOID FRILLS

The instructions given the engineers were simple. They were told to produce a plan that, first, would be practical, and second, would yield the highest possible rate of return on the lowest possible investment. At first hand, these instructions may appear obvious, but upon serious thought it will be found that many plants in the past have been planned and built where these simple fundamentals were disregarded. There is always a great temptation in a case like ours to scrap the old plant, go to a new site, and build a model layout, and to install in it all kinds of refinements, some of which operate very nicely and perhaps really do pay the interest charges on their investment cost, but the most of which are simply nice things to show off to visitors. We were instructed to leave off the frills and to make each piece of equipment stand up by itself in producing profits.

To follow our instructions, it was essential that we utilize to the greatest extent the present equipment, unless it could be shown that by the installation of new equipment in its place a high rate of return would be yielded on the additional investment, through decreased operating expense. Each separate apparatus comprising a part of the new equipment had to be thoroughly studied to decide its economic advantage. There was always the temptation to choose refined equipment, the economy, or rather lack of economy, of which would be submerged in the overall economy of the complete plant. In our final plan we believe we have left off all of the things that do

Reducing Competition
in Gas Range Sales



Gas Companies and dealers selling the **TAPPAN In-So-Top** are assured of **one** product on which they are not competing with every other merchant in the community . . . for there is only one TAPPAN. The TAPPAN Insulated Oven, which keeps the heat out of the kitchen and saves gas; The TAPPAN solid top, made of oil-tempered, satin-finished cast iron, which will not discolor and is easy to keep clean; the TAPPAN rounded corners, and heat regulator, and other special features of this famous gas range, are so obviously superior that they sell themselves.

Write now for dealer information to

TAPPAN STOVE CO.

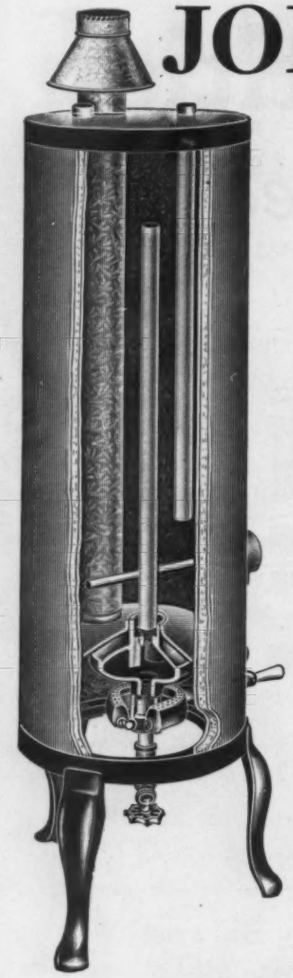
H. R. BASFORD CO.
665 Howard Street, San Francisco
Northern California Representatives

H. R. MAYER
1001 East First Street, Los Angeles
Southern California Representatives

R. B. WHEELER
665 Howard Street, San Francisco
Pacific Northwest Representative

TAPPAN has been making quality ranges since 1881

JOHN WOOD
Manufacturing Co.



Manufacturers of
The Wood Automatic Storage
Gas Water Heater
The Standard Combination
Gas Storage Water Heater
Electric Weld Range Boilers
Expansion tanks, pneumatic
tanks and air receivers

the WOOD Automatic
Storage Water Heater

Made and Guaranteed by

JOHN WOOD
Manufacturing Co.
2437 ENTERPRISE STREET LOS ANGELES, CALIF.

The Beacon Automatic Storage Water Heater

Has a Brass Heating Element With Six Times the Heat Conductivity of Iron

The Beacon is a heavy duty appliance—high grade materials throughout. The boiler is made of heavy gauge galvanized iron and all seams are both riveted and welded.

In addition to the heart of BRASS the Beacon has a rust-proof BRASS circulating pipe which keeps the water clean.

Beacon Water Heater Co.
776 So. San Pedro St. Los Angeles, California

not render their proportionate share in paying dividends, and yet we believe we have chosen a plant the type of which is modern and practical, and in which gas can be produced at a minimum cost per million B. t. u.

SEVERAL PLANS CONSIDERED

In the preliminary work of their report the engineers considered several schemes, working out the general economy of each.

Scheme 1 contemplated the installation of a modern coke oven plant to produce coal gas of 585 B.t.u. heating value, to be mixed with 285 B.t.u. blue gas, produced in modern blue gas machines from coke produced in the coke oven plant.

Scheme 2 contemplated the use of 125 B.t.u. producer gas as a diluent of 585 B.t.u. coal gas.

Scheme 3 contemplated the creation of a coke oven plant by a coke selling company, where metallurgical coke would be the principal product and the residual gas sold to the gas company; we to provide a diluent in the form of blue gas made from lignite coal.

Scheme 4 contemplated the erection of a coke oven plant by our company for the production and distribution of straight coal gas.

Naturally, Scheme 4 offers on paper the greatest possibility of economy since through the sale of by-products, particularly coke, at sufficiently high prices, gas may be put in the holder at a negative cost. However, other factors offset the advantage of low cost of gas in our situation. These are:

1. The heating value standard.
2. High capital investment.
3. Ground space required.
4. Additional holder capacity required.
5. Lack of flexibility.
6. Market conditions for by-products.

We have adopted a standard of 400 B.t.u. heating value, which is commensurate with the rates obtained. All of our experience leads to the conclusion that gas of 400 B.t.u. heating value is economical and satisfactory, and all appliances have been adjusted to burn this gas efficiently. Our records show that service complaints and high bill complaints have actually been reduced, and that the amount of gas for domestic consumption has not increased in a straight line ratio since heating values were lowered.

If we changed to straight coal gas we would not have materially benefitted our domestic customers, had the rate per M cu. ft. remained the same, and we would have established a backward step in progress toward selective low heating value standards, that would have effect upon other situations.

We would have been compelled to locate the new plant upon a site remote from our present plant, which would have necessitated the abandonment and salvage of most of the present equipment. The investment cost of a complete plant to produce 10,600,000 cu. ft. of coal gas would be a large amount, and, furthermore, the cost of the present plant, much of which is modern and desirably usable, would have to be retired from the investment account.

Investment in additional storage capacity would be required since a coal gas plant would have small flexibility.

MARKETING BY-PRODUCTS DIFFICULT

The most serious offsetting factor was that of marketing the by-products. A plant of the size required would produce for sale around 200,000 tons of coke, 4,380,000 gallons of raw tar, and 1,825,000 pounds of ammonia annually.

The location of Denver in a territory which is isolated from potential markets by

MEMBERS:

Acme Sheet Metal Works
285 N. Lake, Pasadena

Beldin Co. Inc.
117 N. Maryland Ave., Glendale

Arthur Betz Gas Heating Works
789 S. Broadway Ave., Pasadena

A. J. Braasch Heating Co.
1041 N. Orange Dr., Los Angeles

Co-Operative Sheet Metal Works
127 N. Glendale Ave., Glendale

Crown City Heating & Ventilating Co.
1107 E. Colorado, Pasadena

Foss Heating & Sheet Metal Works
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Louis H. Freymouth, Jr.
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National Plumbing and Heating Co.
1344 Fifth St. Santa Monica

E. P. Nittinger
1335 Third St., Santa Monica

Ohrmund Bros.
901 E. Colorado, Pasadena

Pacific Gas Radiator Co.,
1740 W. Washington Los Angeles

Pasadena Sheet Metal Works
57 W. Union St., Pasadena

Payne Furnace & Supply Co.
115 E. Union, Pasadena

Payne Furnace & Supply Co.
334 Foothill Rd., Beverly Hills

Phillips Heating, Ventilating & Mfg. Co.
1710 W. Washington, Los Angeles

Potter Radiator Corp.
3517 W. Washington, Los Angeles

Reliable Sheet Metal Works
350 S. Raymond, Pasadena

L. J. Rose
1012 Montana Ave., Santa Monica

Scott Heating and Mfg. Co.
1135 N. Milton Ave., Los Angeles

J. B. Smith Heating Co.,
5426 Santa Monica Blvd., Los Angeles

Superior Fan & Furnace Co.
1827 San Fernando Rd. Los Angeles

W. C. Taylor
313 S. Fair Oaks, Pasadena

Welch Heating Co.
658 N. Preuss Rd., Sherman, Calif.

Introducing—

The Gas Furnace Association

An organization dedicated to raising standards of gas furnace design and installation.

EARLY in July, 1926, the leading furnace manufacturers of California completed formal organization of the Gas Furnace Association. With permanent headquarters established in Los Angeles, the Association is already functioning, and is taking aggressive steps toward its goal of higher gas furnace standards.

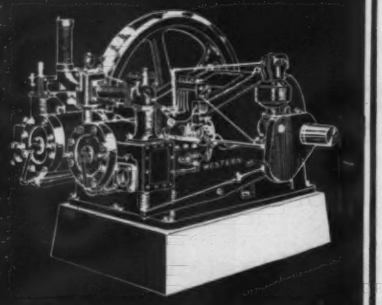
Here is what the Gas Furnace Association proposes to do:

1. **Guarantee members' installations to fill heating requirements of 30 to 70 degrees.**
2. **Establish a code embodying the best installation practice, to which members will conform.**
3. **Set up complete credit information for member companies.**
4. **Through collective advertising, to spread the gospel of GAS, the ideal fuel for house heating.**

Gas companies will easily grasp the importance of this development. No fly-by-night trade combination is this. Its membership, as a glance at the opposite page will show, represents the established, reputable gas furnace industry of California. Back of the integrity of these firms lies the rigid guarantee of furnace performance subscribed to in taking membership in the Gas Furnace Association. Gas companies protect themselves in recommending and specifying furnace lines manufactured by Association members.

Gas Furnace Association of Southern California
635 Chamber of Commerce Bldg., Los Angeles

Write for copy of Standard Code for Gas Furnace Installation. It contains valuable information for gas company executives and employes.



"WESTERN" GAS ENGINES

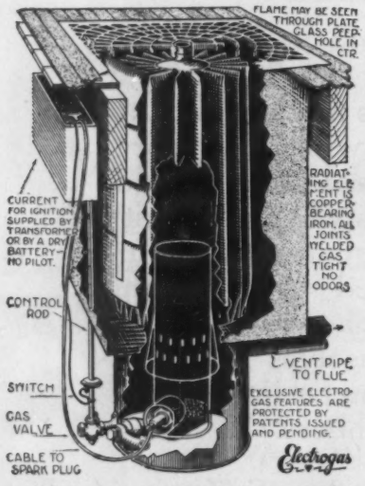
Lower power cost; always dependable; ready for any emergency; no expensive maintenance; anyone can operate; maximum economy and efficiency working either full or part time.

Write for "Western" catalog.

WESTERN MACHINERY COMPANY
Offices & Factory — 910 North Main St.
LOS ANGELES, CALIFORNIA
San Francisco Offices & Factory
18th and Alabama Streets

HOT AIR?

Yes and No!


FLAME MAY BE SEEN THROUGH PLATE GLASS PEEP HOLE IN CTR.
CURRENT FOR IGNITION SUPPLIED BY TRANSFORMER OR BY A DRY BATTERY—NO PILOT.
RADIATING ELEMENT IS COPPER BEARING IRON, ALL JOINTS WELDED GAS TIGHT NO ODORS
CONTROL ROD
VENT PIPE TO FLUE
SWITCH
GAS VALVE
EXCLUSIVE ELECTROGAS FEATURES ARE PROTECTED BY PATENTS ISSUED AND PENDING.
CABLE TO SPARK PLUG
Electrogas

PLENTY for HOUSEHOLD HEAT
NONE for UNPROVEN CLAIMS

Convincement on request.

Electrogas Floor Furnaces are now manufactured in three sizes.

ELECTROGRAS FURNACE CO.
Rialto Bldg. San Francisco

vast distances, mitigates against the sale of the by-products at a profitable price. We would be compelled to sell more than ten times as much coke as is now disposed of with difficulty, and more than three times as much tar and ammonia. Denver is not an industrial city, and therefore the sale of coke in that connection is very limited. For domestic use we have to compete against a low priced and quite satisfactory lignite fuel of low ash content. In addition, we must compete against our own gas for house-heating and industrial uses. The market for tar in this territory is pretty well saturated at this time, and future markets must be in a highly competitive field. The ammonia situation right now is precarious. The sale of synthetic ammonia within the past year has practically annihilated the market in the form of ammoniacal liquor everywhere in the country, so that all plants must go to ammonium sulphate as an outlet for their product. This will result, no doubt, in an oversupply until new markets are produced through costly educational and advertising campaigns. Our location works against us in the sale of this product also, since little fertilizer is used in the contiguous territory.

Scheme 2 was not as economical as Scheme 1 when the capital investment was considered, while offering disadvantages in amounts of by-products to be sold and in the inert constituents of the mixed gas.

Scheme 3 was abandoned because the price we could afford to pay for gas did not interest a coke selling company.

Scheme 1, in general, met all conditions imposed and offered greatest possibility of maximum return on a minimum investment. This scheme was therefore adopted and developed into the final plan as submitted and approved. After the adoption of this scheme a detailed analysis was made of the various features to be incorporated. Some of the features studied were the following:

1. Erection of the plant on present site or upon adjacent property.
2. The use of attached or outside producers for oven heating.
3. The use of blue gas for oven heating.
4. The use of various coals for oven heating.
5. The use of waste heat boilers in oven plant.
6. The use of waste heat boilers, steam turbine driven motors and exhaust steam accumulators in blue gas plant.
7. The use of coal as generator fuel for making blue gas.

NEW EQUIPMENT

The final plan, as approved, covers the installation of 45 Improved Equipment Company ovens, erected in space now occupied by 26 of the coal gas retort benches. The ovens are approximately 22 feet in length by eight feet in height, and each will carbonize four tons of coal in 12 hours. Provision is made for the installation of an additional battery of 45 ovens in place of the remaining retort benches at a later date. The ovens are heated by attached producers, using either coke or coal as fuel. Doherty Fuel Economizers are attached to all producers by which a portion of the waste gases are returned to the fuel bed.

A complete blue gas plant is being installed by the Gas Machinery Company, consisting of two 12-foot generators, ignitors and Wickes water tube waste heat boilers. The blowers are turbine driven and accumulators provided for returning exhaust steam to the generators. Coke will be used as fuel.

The present carburetted water gas equipment will be kept intact for the present to be used in the generation of peak gas, although at a later date it may be found economical to convert a part of this equipment for the manufacture of blue gas. No additional purification and storage equipment will be required.

PLANT CAPACITY

The proposed plant, when completed, will have a daily capacity of 10,600,000 cu. ft. of base gas of 400 B.t.u. heating value, while the daily capacity of carburetted water gas equipment for peak gas will be approximately 14,000,000 cu. ft. daily. Additional coke ovens and blue gas equipment will be installed in units as required to provide for increased base loads.

Estimates of gas loads and costs, with investment requirements, were made covering a period of 20 years, and these calculations showed that the savings to be made in production costs of gas in holders over the actual costs for the year of 1924 would return approximately 70 per cent per year upon all of the additional investment required during this period. At the end of 20 years the present plant site would still be adequate. While we realize the uncertainty of forecasting conditions so far in the future as 20 years, this becomes of minor concern when the additional investment is returned in 17 months.

Considerable thought was given to the flexibility of the new plant in meeting the varying load requirements throughout the year. A chart was plotted showing each daily output for the year of 1924. During this year the average daily load was 8,700,000 cu. ft., with a maximum of 13,800,000 cu. ft. and a minimum of 6,400,000 cu. ft. To meet this varying load with a minimum volume of carburetted water gas was the object to be attained.

Assuming 400 B.t.u. to be the desired average heating value, a variation of five per cent above or below the average, or from 380 to 420 B.t.u., is allowed under Commission Rules. We are of the opinion that such variation does not affect utilization efficiencies to an appreciable extent. We purpose to make a constant amount of coal gas and vary the amount of blue gas mixed therewith to meet daily output demands within the limits of 380 and 420 B.t.u. This will give us a variation of approximately 42 per cent between the minimum and maximum, which will handle all outputs except for a relatively few days, when either lightly carburetted peak gas will be made or charges skipped in the oven plant. It is found that all daily outputs during the year of 1924, except on 26 days, could be handled with the base gas in the manner described, while 90 per cent of the daily outputs in that year could be handled within a range of heating values from 388 to 414 B.t.u., or three per cent below or above the standard. A Thomas Recording Calorimeter and mixing valve will be employed and loads handled through a despatcher system, tying in the district holder stations with the manufacturing plant.

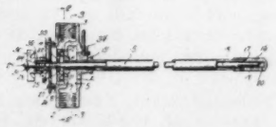
GAS ANALYSIS

The analyses of the different gases will be as follows:

	Coal Gas 585 B.t.u.	*Blue Gas 285 B.t.u.*	*Mix. Gas 400 B.t.u.*
Carbon Dioxide	2.2%	4.5%	3.50%
Illuminants	3.5%	....	1.36%
Oxygen	0.3%	0.4%	0.36%
Carbon Monoxide	6.8%	39.5%	26.75%
Hydrogen	47.3%	50.0%	48.85%
Methane	33.9%	2.0%	14.44%
Nitrogen	6.0%	3.6%	4.74%
Specific Gravity	.44	.5354	.4987

THIS MONTH'S PATENTS PERTAINING TO THE INDUSTRY

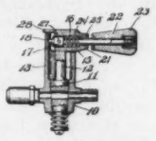
1,569,474. OVEN REGULATOR. FRANK A. GAUGER, Milwaukee, Wis. Filed May 24, 1924. Serial No. 715,542. 5 Claims. (Cl. 236—102.)



1. A thermostatic regulator for gas ovens comprising a hollow body portion having a transverse apertured web, a tube screwed into said body portion and extending through said web, a rod carried within said tube and secured to the outer end thereof, said rod extending through said body portion and provided with a shouldered part, a valve carried by said rod and adapted to cooperate with the apertured web to control the flow of gas, and a spring normally holding said valve against the shoulder portion of said rod.

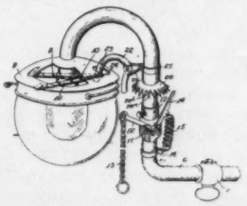
1,569,180. GAS-COCK LOCK. BERNARD HAGBERG, Muskegon, Mich. Filed Sept. 3, 1925. Serial No. 54,362. 2 Claims. (Cl. 251—105.)

1. In combination with a gas cock including the usual valve element and stem therefor and casing, an angular extension upon the stem having a bore, a housing for the stem carried by the body of the valve and having portions opposing the angular portion of the stem throughout the movement of the stem, a plunger mounted in the bore of the angular portion of the stem, a handle element for shifting the plunger to partially rotate or to longitudinally move the same, a tit on the plunger and a socket in the opposed portion of the stem housing, single means constantly urging the tit on the plunger



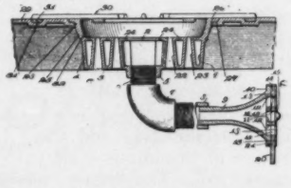
in a direction to engage the stem housing and to rotate the plunger and means preventing rotation of the plunger until the tit is engaged in the socket of the stem housing and then permitting limited rotation thereof.

1,576,973 AUTOMATIC GAS-SHUT-OFF MECHANISM. LOUIS HILL, Akron, Ohio. Filed Jan. 16, 1924. Serial No. 686,476. 5 Claims. (Cl. 67—116.)



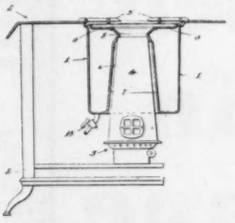
1. In a device of the character described the combination, with a gas burner, a gas pipe leading to said burner, and a valve for controlling the flow of gas through said pipe to said burner, of a bell crank lever connected with said valve, a spring connected with said bell crank lever for shifting the same in a direction to close said valve, means controllable by hand for shifting said bell crank lever in a direction to open said valve, a supporting disk mounted upon said gas pipe, a wheel encircling said gas pipe and resting upon said supporting disk, said wheel being provided with teeth extending partially into the path of travel of said bell crank lever, an interference arm journaled adjacent said wheel and movable into engagement with the teeth thereof to lock said wheel and thus hold said valve open, and a thermostatic element mounted adjacent said burner and connected with said interference arm to shift said interference arm into and out of engagement with said toothed wheel, thus locking and releasing said toothed wheel.

1,571,822. GAS BURNER. EUGENE ELTON WANN, Bradford, Pa. Filed Dec. 29, 1924. Serial No. 758,656. 2 Claims. (Cl. 158—116.)



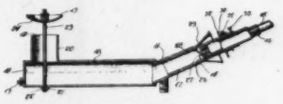
2. The combination with a substantially horizontal supporting plate having an opening formed with a circular seat at its upper end, of a burner body having a gaseous fuel receiving and distributing space therewithin and having an inlet opening in its bottom adapted for connection with a source of gaseous fuel supply and a plurality of spaced gaseous fuel discharge orifices in its top, said burner body having an outwardly and upwardly extending continuous flange substantially fitting in said opening in the supporting member and having an outwardly extending lip at its upper end adapted to engage with said seat, a grid supported on said supporting plate above said opening in the supporting plate, an imperforate deflecting plate resting upon said grid and extending outwardly beyond the outer edge of said lip, and a second imperforate heat deflecting plate supported on the first deflecting plate in spaced relation to the latter and extending outwardly beyond the outer edge of the first heat deflecting plate.

1,577,849. WATER-HEATING ATTACHMENT FOR OIL AND GAS STOVES. OTTO PETERMANN, Groton, N. Y. Filed Jan. 11, 1922. Serial No. 528,381. 1 Claim. (Cl. 126—53.)



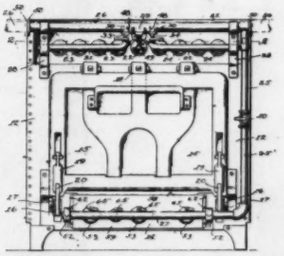
The combination of a stove having a burner including a chimney, an opening in the top of the stove, above and in line with the burner, having a greater diameter than the chimney, a grid extending across such opening, and a water heating attachment, comprising a tank formed with a vertical passage therethrough for the chimney, the tank surrounding the chimney, and having a top located beneath the grid, the wall of said passage being spaced apart from the chimney, and the chimney terminating short of the top of the tank, and the chimney engaging at its top the wall of said passage, and said passage flaring outwardly from the top of the chimney.

1,572,833. BURNER CONSTRUCTION. GEORGE BAKER, Pershing, Okla., assignor of one-third to Lee McCrory and one-third to Rees J. Jones, jr., both of Pawhuska, Okla. Filed June 9, 1925. Serial No. 36,029. 5 Claims. (Cl. 158—118.)



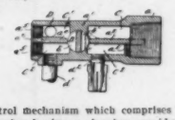
4. In combination with a fixed mixing chamber having an inlet and a gas drum aligned with said inlet, a sleeve slidably fitting the inlet of the mixing chamber and said drum, and having means whereby it may be secured in adjusted positions with relation thereto, said sleeve having openings formed in the wall thereof elongated longitudinally of the axis of the sleeve, the sleeve having secured thereto upon its exterior and at the end of the openings next adjacent the inlet of the mixing chamber the smaller end of a conical flange the outer end of which is directed toward the drum engaging end of the sleeve said sleeve being of greater length than the openings and a collar slidably mounted upon the sleeve in opposition to the larger end of the flange and having a flange which, when in one position of the collar, engages the first named flange interiorly to prevent the passage of air between said flange and the sleeve to said opening and means for securing said collar in adjusted positions.

1,574,940. GAS RANGE. WILLIAM ELBERT SEXTON, Baltimore, Md., assignor, by mesne assignments, to The Baltimore Trust Company, trustee, a Corporation of Maryland. Filed Apr. 11, 1924. Serial No. 705,766. 9 Claims. (Cl. 126—39.)



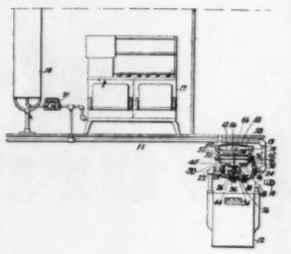
1. In a gas range the combination with a plurality of top burners arranged in groups, of a plurality of bottom burners, a lower main for supplying gas to the lower burners, an upper main, a pipe connecting said lower and upper mains and maintaining communication between the two, a branch from the upper main to one group of top burners a separate branch from the upper main to another group of top burners, said branches being independent of the pipe that connects the lower and upper mains, and separate valves between the upper main and said branches for controlling the flow of gas from said upper main to said branches.

1,580,179. GAS CONTROL FOR OVEN BURNERS OF GAS STOVES. WILLARD I. TWOMBLY, New York, N. Y., assignor, by mesne assignments, to The Wilcolator Company, Newark, N. J., a Corporation of Delaware. Filed June 6, 1922. Serial No. 566,426. 3 Claims. (Cl. 158—99.)



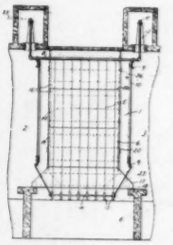
1. A control mechanism which comprises the combination of a casing having a chamber provided with a gas inlet adapted to be connected to a gas supply, a second chamber in the casing having a gas outlet adapted to be connected to a gas burner, a pair of chambers in the casing connected together through a connection outside the casing, and a valve within the casing movable to different positions of adjustment, the said valve being operative in one position to connect the inlet chamber to one of the pair of chambers, and the outlet chamber to the other, in a second position operative to connect the inlet and outlet chambers together, while shutting off the pair of chambers therefrom and from each other, and in a third position operative to shut off the inlet and outlet chambers from each other.

1,575,260. PROCESS AND APPARATUS FOR DISTRIBUTING GAS TO CONSUMERS. JAMES P. FISHER, Bartlesville, Okla., assignor to Doherty Research Company, New York, N. Y., a Corporation of Delaware. Filed May 4, 1921. Serial No. 466,761. 14 Claims. (Cl. 48—190.)



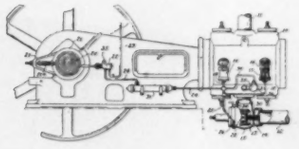
8. An apparatus for distributing gas to consumers comprising a supply main, means for limiting the demand of a consumer on the supply main, and means for automatically restricting the flow of gas to certain of the appliances of the consumer when necessary to assure an adequate supply of gas to other of the consumer's appliances.

1,569,492. APPARATUS FOR ELECTRICAL PRECIPITATION OF SUSPENDED MATERIAL FROM GASES. GEORGE H. HORNE, Glendale, Calif., assignor to International precipitation Company, Los Angeles, Calif., a Corporation of California. Filed Apr. 13, 1925. Serial No. 22,847. 6 Claims. (Cl. 183—7.)



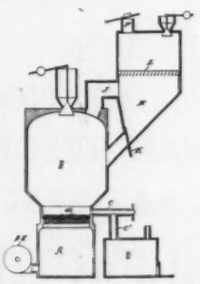
1. In an electrical precipitator a collecting electrode formed of semi-conducting material and provided with metallic members embedded therein and extending horizontally, and discharge electrode means adjacent said collecting electrode means and comprising a plurality of vertically extending members of relatively small cross-section.

1,575,002. COMPRESSOR REGULATOR. WARD RAYMOND, Easton, Pa., assignor to Pennsylvania Pump & Compressor Company, Easton, Pa., a Corporation of Pennsylvania. Filed Jan. 29, 1925. Serial No. 5,544. 4 Claims. (Cl. 137—148.)



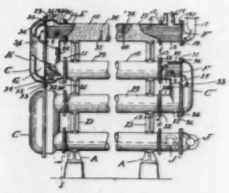
1. An unloader valve for a compressor comprising in combination, a body member, a valve therein movement of which controls the loading and unloading of the compressor, and two independent fluid inlet means to close said unloader valve, one of said means being operated by the speed of said compressor and the other controlled by the pressure of the compressed fluid.

1,582,718. MANUFACTURING ACTIVE CARBON. FRITZ WINKLER, Ludwigshafen-on-the-Rhine, Germany, assignor to Badische Anilin- & Soda-Fabrik, Ludwigshafen-on-the-Rhine, Germany, a Corporation of Germany. Filed Sept. 29, 1923. Serial No. 665,627. 6 Claims. (Cl. 252—3.)



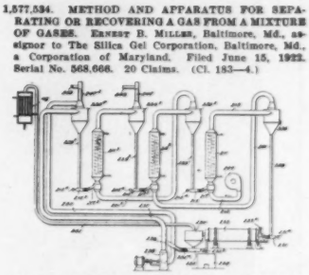
1. The process of manufacturing active carbon which consists in treating carbonaceous material in a shaft furnace with hot combustion gases which are blown through the said material with sufficient pressure to establish a strong agitation of the material.

1,581,384. HEAT EXCHANGER. DICK BURNET CHESTER, Buffalo, N. Y. Filed Apr. 28, 1921. Serial No. 465,110. 3 Claims. (Cl. 257—234.)



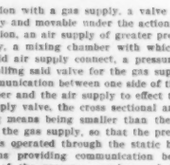
1. The combination with a plurality of cylindrical conduits arranged parallel to one another of a plurality of tubes parallelly disposed in each of said conduits, coupling members connecting said cylindrical conduits in series, and floating heads in alternate coupling members providing communication between the tubes in one conduit and the tubes in the connected conduit and providing for expansion and contraction of the tubes and conduits.

1,577,534. METHOD AND APPARATUS FOR SEPARATING OR RECOVERING A GAS FROM A MIXTURE OF GASES. ERNEST B. MILLER, Baltimore, Md., assignor to The Silica Gel Corporation, Baltimore, Md., a Corporation of Maryland. Filed June 15, 1922. Serial No. 568,668. 20 Claims. (Cl. 183—4.)



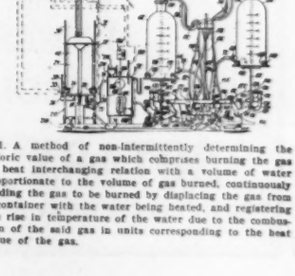
1. The method of separating a gas from a mixture of gases consisting in feeding finely dividing porous solid gas adsorbing material into a stream of said mixture of gases so that it is carried along thereby in suspension, said material having pores of the proper size to adsorb said gas and thereafter permit its easy liberation, separating the adsorbing material and gases, treating the material to liberate the gas adsorbed thereby and returning the material for use again, all of said steps being performed in a continuous closed cycle.

1,577,511. AUTOMATIC GAS-SUPPLY CONTROLLING MEANS. JOHN B. ALLINGTON and GEORGE S. DADY, Rochester, N. Y. Filed Nov. 9, 1922. Serial No. 599,780. 1 Claim. (Cl. 48—180.)

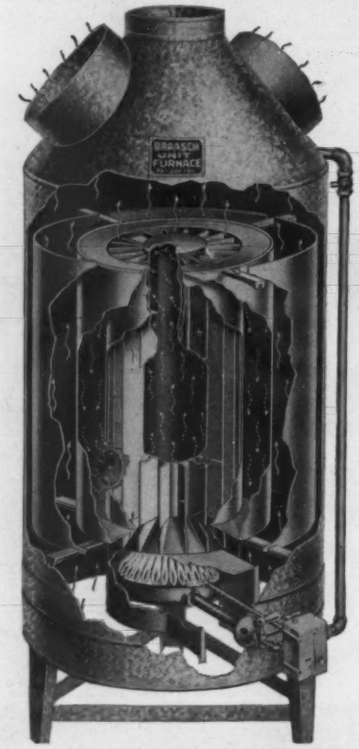


In combination with a gas supply, a valve controlling said gas supply and movable under the action of gravity to closed position, an air supply of greater pressure than the gas supply, a mixing chamber with which said gas supply and said air supply connect, a pressure operated member controlling said valve for the gas supply, means providing communication between one side of the pressure operated member and the air supply to effect the opening of the gas supply valve, the cross sectional area of such communicating means being smaller than the cross sectional area of the gas supply, so that the pressure operated member is operated through the static head of the air line, means providing communication between the opposite face of the pressure member and the mixing chamber, the cross sectional area of said means being smaller than the cross sectional area of the mixing chamber at the point where said means communicates with the mixing chamber, whereby the reduction of the pressure in the air supply below the pressure of the gas supply effects the cutting off of the gas supply and the building up of pressure in the mixing chamber due to interference with the flow from the mixing chamber will cut off the gas supply.

1,572,283. GAS CALORIMETER. ROBERT G. GRISWOLD, Westfield, N. J., assignor to Doherty Research Company, New York, N. Y., a Corporation of Delaware. Filed July 3, 1922. Serial No. 572,554. 19 Claims. (Cl. 73—184.)



1. A method of non-intermittently determining the caloric value of a gas which comprises burning the gas in heat interchanging relation with a volume of water proportionate to the volume of gas burned, continuously feeding the gas to be burned by displacing the gas from a container with the water being heated, and registering the rise in temperature of the water due to the combustion of the said gas in units corresponding to the heat value of the gas.



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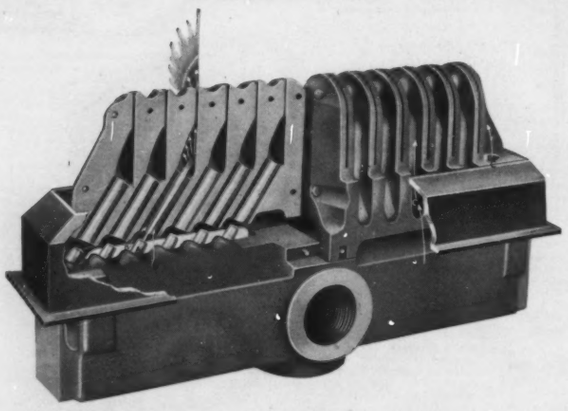

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When the heating value is varied through the range from 380 to 420 B.t.u., the specific gravity will vary from .5054 to .4927. The specific gravity of the lightly carburetted blue gas for peak days will be .55 and the variation under any load condition as now experienced will be inconsequential.

With the scheme as described in the foregoing the proposed plant, having an average daily capacity of 10,600,000 cu. ft. of 400 B.t.u. base gas, could produce 12,860,000 cu. ft. of 380 B.t.u. gas, or 9,076,000 cu. ft. of 420 B.t.u. gas, without carburetting or skipping charges.

COKE PRODUCTION AND SALE

There will be produced in this plant a surplus of 12,000 tons of coke per year, of excellent quality, over the requirements for oven fuel and blue gas manufacture. This is somewhat less than the amount sold last year, so that it is our expectation that it can be sold at a higher price and with a minimum of sales expense. Seasonal stocks of coke will be reduced, which will release ground space for other purposes and save interest on the money represented by such stocks. As the base load increases the amount of coke to sell will increase in the same proportion, but as the salable coke represents only 15 per cent of the total coke produced, and as the coal gas represents but 39 per cent of the total base load, the sale of coke should never be a serious problem. The same will be true of other by-products in which the quantity to be disposed of will increase proportionately as the base load, but this quantity will at all times be 39 per cent as much as in a straight coal gas plant.

Cost figures would be interesting, but would probably serve no useful purpose in other situations than our own, where the factors and conditions would be different. In our report there were 200 pages of calculations and numerous charts and tables, which we have purposely refrained from referring to, to any great extent, because of the monotony of figures. Any one may produce similar figures for a given situation by thorough analysis, which might result in a different type of plant than that adopted by our company, on account of different conditions and cost factors involved.

CLYDE POTTER TAKES ON COMMERCIAL WORK

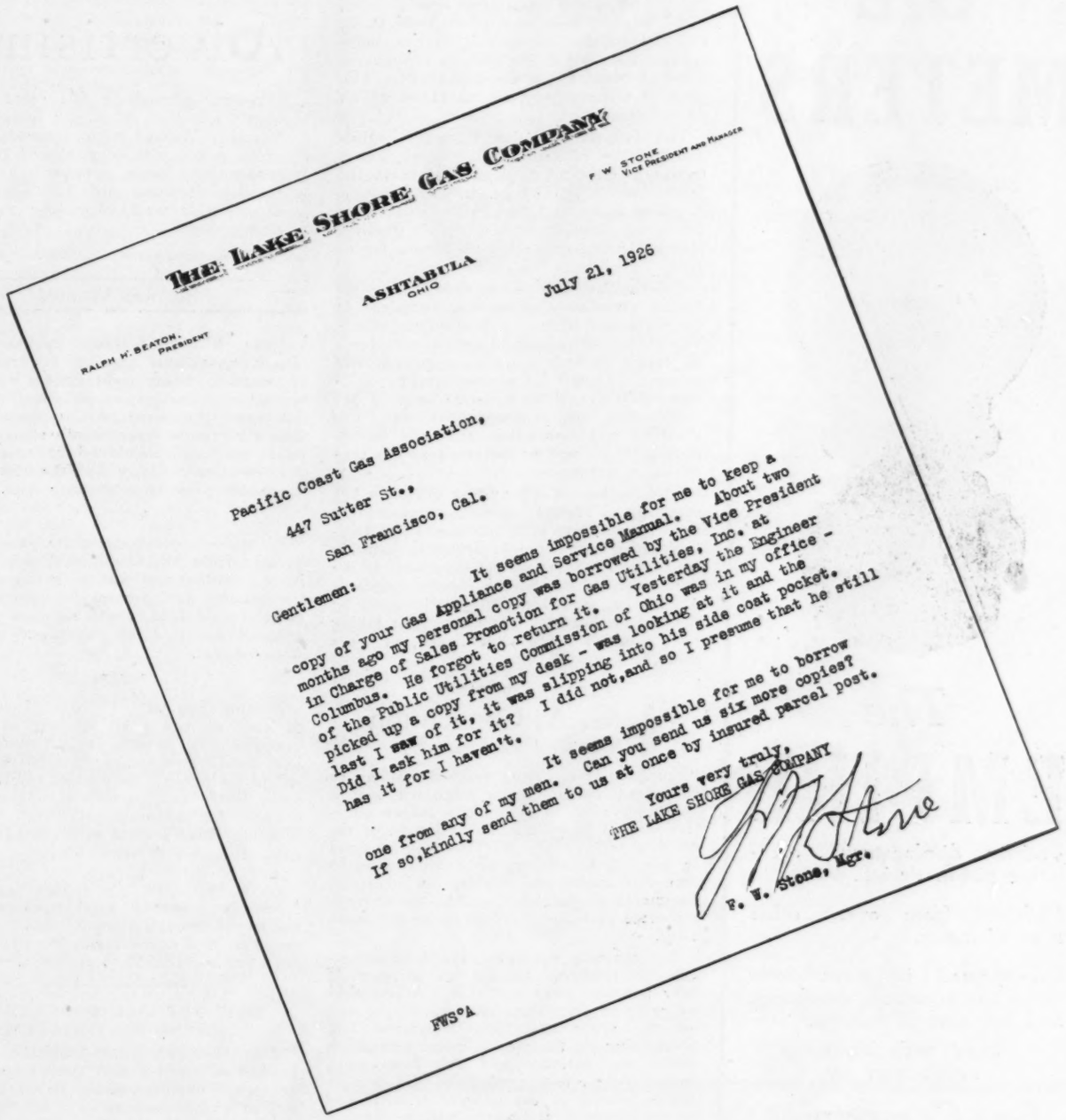
Clyde H. Potter, advertising and publicity man for the Southern Counties Gas Company, has recently assumed some additional duties formerly performed by the company's general commercial agent. He is now in charge of the merchandising department for the utility in connection with his present advertising duties.

PNEUMATIC TOOLS PROVE HELP IN ROCKY SOIL

Considerable experimenting is now being done by the Portland Gas and Coke Company in the use of pneumatic tools for excavation in rocky soil. The regular pavement breaker guns have been tried out on this work and have been found very valuable wherever it is necessary to break rock on main extension jobs.

COMBUSTION CONTROL BOOKLET OUT FOR SMOOT ENG. CORP.

Smoot Engineering Corporation of New York has a new booklet on the Smoot control of combustion for traveling grate stoker fired boilers.



THE LAKE SHORE GAS COMPANY

F. W. STONE
VICE PRESIDENT AND MANAGER

RALPH H. BEATON,
PRESIDENT

ASHTABULA
OHIO

July 21, 1926

Pacific Coast Gas Association,
447 Sutter St.,
San Francisco, Cal.

Gentlemen:

It seems impossible for me to keep a copy of your Gas Appliance and Service Manual. About two months ago my personal copy was borrowed by the Vice President in Charge of Sales Promotion for Gas Utilities, Inc. at Columbus. He forgot to return it. Yesterday the Engineer of the Public Utilities Commission of Ohio was in my office - picked up a copy from my desk - was looking at it and the last I saw of it, it was slipping into his side coat pocket. Did I ask him for it? I did not, and so I presume that he still has it for I haven't.

It seems impossible for me to borrow one from any of my men. Can you send us six more copies? If so, kindly send them to us at once by insured parcel post.

Yours very truly,
THE LAKE SHORE GAS COMPANY
F. W. Stone, Mgr.

FWS°A

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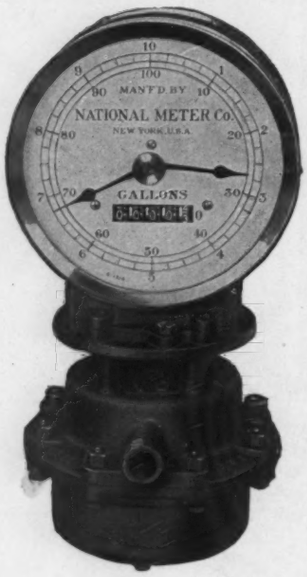

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Gas Companies

in every section of the country.

Made in all sizes, 5/8 in. to 6 in., inclusive.

EMPIRE Oscillating Piston Oil Meters are fully described and illustrated in Circular 110-W. Send postal for your copy.

National Meter Company

299 Broadway, New York

Chicago Boston Atlanta
San Francisco Cincinnati
Los Angeles

HUNTINGTON BEACH SCENE OF MANY GAS DEVELOPMENTS

NATURAL gas and natural gasoline developments are coming thick and fast in the Huntington Beach, Calif., field. Permits have been granted the O. C. Fields Gasoline Corporation, largest independent operator in the field, to lay several miles of pipelines in the community. The plant of this company has an 11,000 gallon daily capacity.

The Fellows Gasoline Company, subsidiary of the Wilshire Oil Company, has a permit to erect an absorption plant in the fields with 25,000,000 cu. ft. gas capacity. A ruling is under action in the Huntington Beach city council under which all gasoline plants are to pay an annual license fee of $125.

Construction has been opened by the Pacific Gasoline Company on a plant in the northwest section of Huntington eBach. The plant will embody several new features of design in both the cooling towers and stripper, and will be equipped with Southwestern Water Tube Boilers. Two Cooper combination engine-compressors and one absorber and distillation unit will be installed, which will be increased as gas conditions warrant.

The Southern Counties Gas Company has extended its Huntington Beach transmission lines to take care of requirements for drilling, which have brought a sudden jump in the company's local gas consumption. In the first week in August the consumption was 500,000 cu. ft., which rose to 5,000,000 by the last of August. The company is taking over some of the gas developed, as wells come in.

A. G. A. Convention

(Continued from Page 31)

"saturation point" was reached, so far as space requirements were concerned, and it became evident that for 1926 larger quarters were a necessity. The selection of the Million Dollar Pier was the solution, and in addition to solving the Exhibition problem, this choice also enables the other departments of the Association to make more elaborate plans for their meetings and functions.

For example, the space available for exhibition purposes permits an increase of fifty per cent over last year. At the time of going to press more than ninety per cent of this space had been contracted for. Everything on the pier is under permanent cover and entrance and exit from auditoriums where meetings will be held, notably those devoted to the general sessions and to the Commercial Section, will be through the Exhibition halls.

The opportunities for giving the gas man a good time while at the Convention are unsurpassed in the Million Dollar Pier. The main ball room, which is directly off the boardwalk, can accommodate with ease even the large crowd expected at the Eighth Annual Association Convention.

Atlantic City—Million Dollar Pier—A. G. A. Convention—where the gas man will be and what he will be doing, October 11 to 15.

SO. CALIF. GAS CO. TO HAVE NEW LANKERSHIM OFFICE

Contract has been let by the Southern California Gas Company for the construction of a branch office building in Lankershim, Calif.

Classified Advertising

Classified advertising five cents per word; minimum $2.00 per insertion. Situation Wanted advertisements up to 50 words will be published three consecutive issues without charge. Small professional cards 1-in. deep by 21 ems wide are $5.00 monthly on 12-time contract.

Situations Wanted

Note: Western Gas will publish free of charge, under this heading, advertisements of situations wanted. Maximum length, 50 words; additional space at classified rates five cents per word per insertion. Copy should be neatly typewritten on one side of paper only, and should be mailed to reach *Western Gas* not later than the 20th day of the month prior to publication date.

Wanted—Employment on the Pacific Coast by man from Mid-Continent Field. Experience installing and managing city distribution plants, and general line work. Last position paid $200.00 and expenses which I resigned due to family sickness. Box A-2 *Western Gas.*

Heating Engineer—39 with 25 years experience in warm air heating in all its branches, mfg. heaters, lay out work, figure jobs, handle men and shop, install work and sell to the public. At present employed but want better and permanent opening with chances for advancement. Will start at $250.00. Have several good gas heater patents. Box A-1 *Western Gas.*

Sell your second hand machinery and equipment through a small classified advertisement in *Western Gas.* It costs but five cents per word or $2.00 per issue.

NEW FURNACE BOOKLET ON PAYNE UNIT SYSTEM

Payne Furnace Supply Company, Los Angeles, has issued a new descriptive booklet devoted to features of the Payne Unit System of gas house-heating.

NEW MATERIAL FOR PIPE PROTECTION ON MARKET

Designed for the protection of pipe lines and the preservation of materials and equipment in and around gas plants, a new product, with native Trinidad Lake asphalt as a base, has just been perfected by the McRae Paint Products, Inc., following 15 years of experimentation and research. A. M. Shenk is sales manager of the Everlasting Paint and Sales Company, distributors of "McEverlast" as this protective coating is called. Head offices of the manufacturing firm are maintained at room 704 Sun Finance Building in Los Angeles. A high-heat resisting paint is also being produced by the McRae Company and distributed by the Everlasting Paint and Sales Company.

Selling *a* Gas Range

(Continued from Page 37)

that he is dealing more scientifically with the problems arising in his work.

INDUCING DECISION

Referring to the customer's approval of the range tends to suggest a finality which is favorable for inducing decision. The customer wishes to be considered logical, but her position in this respect appears endangered if she does not confirm her former words of approbation. The act of confirming them strengthens your position and weaves the threads of the sale more closely about the customer. Enough approval and the sale is inevitably made.

When the prospect is balancing between buying and not buying, the slightest word may make or lose the sale. "You couldn't have decided on a more attractive range, Mrs. Brown." "Mrs. Brown, you have selected the best range that we have in stock." Closing actions can sometimes be affected by concentrating on one model of range, which will tend to make the customer feel that she has decided to purchase that which you have under discussion. Her whole attention is thereby concentrated on one range and is not scattered over several different models. Decision can sometimes be brought about and effected by reaching for the sales book.

To summarize, there are three points to remember:

FIRST: Know your range, so that you can create value in the customer's mind. There is no value in the customer's mind until you have put it there.

SECOND: Know your customer. If you know why your customer buys you are in a better position to sell than the salesman who is in a rut and believes that all people are the same and should be handled the same.

THIRD: Know yourself. If you know yourself, you will be able to strengthen your weaknesses.

STEAM PRESSURE FLUCTUATION EXPERIMENT IN PORTLAND

A novel method of reducing steam pressure fluctuations due to waste heat boiler operation is being tried out by the Portland Gas & Coke Company. They have two steam-turbine-driven 500 K. W. generators used as stand-by only in case of failure of power purchased from an outside company. A controller operated by the steam pressure and connected to the turbine governor varies the load on the turbine in proportion to the steam pressure, i. e. the higher the pressure the greater the load. Preliminary trials with hand-operated control proved successful and an automatic control is being installed. This will not only reduce pressure fluctuation but will materially reduce the bill for purchased power and will utilize steam that would otherwise be wasted at times when the steam generated is in excess of requirements.

TAPPAN DISTRIBUTOR NOW IN NEW LOS ANGELES OFFICE

Harry R. Mayer,, Los Angeles distributor of the Tappan Stove Company, announces the removal of his office from 924 E. Third Street to the National Warehouse at 1001 E. First Street where he has a more adequate display room.

The Original Pipe Covering Is the Best Today!

Read What This Engineer Says:

"The value of spirally - wrapped tar saturated felt fabrics applied by machine is shown by the absence of any trace of corrosion in the exposed specimens so treated"—

Extract from "Factors in Prolonging the Life of Buried Pipe," by H. S. Christopher, Southern California Gas Co., read before Pacific Coast Gas Assn., 33d annual convention.

THE Pioneer Paper Company originated the first pipe covering. Pioneer Pipe Covering is the best protection you can buy!

Miles of pipe . . . years of service . . . savings that amount to thousands of dollars to oil companies and public utilities, prove the merits of Pioneer Pipe Covering.

Consult our engineering department . . . let us solve your pipe problems.

Pioneer

PIPE COVERING

PIONEER PAPER COMPANY

Established 1888

Seattle Los Angeles San Francisco Portland

GOVERNORS

Automatic
Balance
High and Low Pressure
District
Reverse Flow
Fuel Gas
Service
Special

OXIDES

PURIFYING MATERIALS

EQUIPMENT

Back Pressure Valves
Boosters
Photometers
Unison Telemetric Gauge
Gas Timers
Gauges
Street Department Tools
Gas Tape
Miller Packing

Connelly Iron Sponge & Governor Co.

New York San Francisco Chicago

"McEVERLAST"
T.M. REG.

Protective Coatings

Stops and Prevents Corrosion

Live Trinidad Lake Asphalt, held in suspension, constitutes over 50% of the base of McEverlast Protective Coatings.

They adhere to metal, wood, concrete, stone or burned clay products, penetrating to exceptional depths. Their elasticity prevents cracking due to vibration, expansion or contraction of the surface treated. They will not disintegrate when portion of any treated material is buried in the ground. McEverlast Protective Coatings are an absolute protection against all of the corrosive elements (acids, alkalies, salt air, sea-life, etc.). They render wood immune from the attack of the termite (white ant). They are odorless and non-poisonous. Applied by brush, dipping or spraying, and do not have to be heated or changed in any way from their original state as shipped in the containers.

LUMINITE

The 1400° Heat Paint

Industry, and particularly the Gas Industry, has long been in need of a paint such as Luminite—a real heat-resisting paint that will undergo heat 1400 or 1800 degrees for a long period without any effect on the painted surface. Sudden cooling or rapid temperature rises will not cause this paint to check, crack or flake.

It is the one ideal paint for gas generators.

Write us today for complete information about McEverlast Protective Coatings and luminite Paint-Guaranteed products for industrial purposes.

Everlasting Paint and Sales Co.

510 W. Sixth Street, Los Angeles, California

Sole Distributors

Phone TRinity 4451

McRae Paint Products, Inc., Manufacturers (3)

FITTINGS

You can order fittings of any kind for immediate delivery from our large stock.

We also produce:

FLINTCAST **CORROSIRON**
MONEL METAL **GREY IRON**
SPECIAL IRON

PACIFIC FOUNDRY COMPANY

Harrison and Eighteenth Streets,
San Francisco

Gas Co. Merchandising

(Continued from Page 35)

A friend approached me recently, asking advice as to the investment of ten thousand dollars, stating that he had about determined to invest in a company engaged solely in the electric utility business, although the representative of the combined gas and electric company had tried to convince him theirs was the best and safest investment. A few questions elicited the fact that he was sold on the idea that the gas department of the combined company was a liability, as he believed that the gas business was on the decline and that in a very few years, electricity would entirely replace it, for every purpose. I convinced him of the desirability of gas securities, but it was a real task.

A great many of the investing public are impressed by the greater energy and initiative of the electric companies, and the thought that the snow-clad mountains hold infinite possibilities for electric development, also that usually electric companies are very active in the sale of appliances.

Our needs are becoming greater each year and a recognition of our situation, facing facts, will greatly aid in the solution.

The gas business is very stable; it would be difficult now to get along without its service, but gradually other fuels, even though they cost more and are actually inferior, will supplant us, unless we adopt more progressive policies in relation to utilization.

DECREASING SALES

A review of sales in 1925 in the territory served by this Association shows sales per consumer decreased 4%. In contrast to this we have the sales in Washington, Oregon, and British Columbia, largely influenced by three large companies, all of which are actively engaged in sale of gas appliances, showing an increase of 2½% in sales per consumer. This, in spite of the fact that the northwest experienced one of the warmest winters in years, which naturally affected their winter load.

Manufacturing the gas, distributing and delivering it to the meter of the consumer is not sufficient. It must go further, if its best interests are to be protected and a healthy growth continue.

Gentlemen, thing of this. The utility has the greatest advertising power known to man. The utility has the greatest merchandising possibilities known. If the utility's business is produced through outlets, it is obvious the utility must produce the outlets. The utility must advertise, talk, sell appliances all the time, and even then its views will not be held by the many. So much the more need, then, to recognize the principles governing the business.

In seeking new capital, the utility must go to the public, and how better to increase sales of securities than through the appliance sales department, which is in constant contact with the consumer, selling him appliances which he needs in home and industry and rendering satisfactory service.

MERCHANDISING, THE ANSWER

Merchandising is the answer, for with the enormous usages of gas and the many new developments, it is necessary that appliances be sold by the gas company.

I ask you, is there any other agency with the organization, capabilities or willingness to spend the necessary money and energy, to cope with the problems of Power, Refrigeration, Industrial, Research, Heating and Domestic, than the gas company itself?

It is your problem, and shirking the responsibilities or passing the burden to other shoulders but complicates, and in the end

will result in but one situation—our backs to the wall, fighting to protect our investment, let alone showing an operating profit.

Logically and practically, the gas company has to assume this responsibility, or else face decreased per capita consumption, and once this occurs, it is a long, hard, uphill, expensive battle to regain its proper balance. To assume that the merchant is capable of solving the problem, or carrying the burden, is fallacious in the extreme and in all the history of American gas practice, where the utility has persisted in evading its appliance responsibility, the inevitable has occurred—loss of prestige, loss of revenue and inferior service.

It is clear, the responsibility of leadership in the appliance business rests squarely on the shoulders of the gas company, if its own and the public's interests are to be fully protected.

LEARNING FROM THE OIL COMPANY

I feel sure the experience of the oil companies is a case in point. They market their oil and gasoline through their own retail service stations, maintaining a high standard of quality and service. Through experience, they long ago learned that dependence on dealers only was not constructive; it lessened the prestige of their name, encouraged poor quality and invited loss in revenue.

The oil companies encourage and assist the legitimate dealer and help him to sell quality products, but the leadership they assume results in benefits to all concerned.

Practically every gas company outside of the Pacific Coast, in both the United States and Canada, is engaged in the appliance business, and has found it to be the right policy. The excuse that our local conditions may be sufficient cause for not adopting a like policy, the facts prove to the contrary.

Thousands of dollars yearly are being spent by utilities attempting to sell an intangible service, whereas, if this money were spent selling the appliance which produces gas sales, the advertising would pay for itself through profits on the merchandise and increased sales of gas.

MORE CONSUMER CONTACT

The service message, which is important, would also be better sold. Unless the gas company is in the appliance business, the only real contact with the consumer is through the medium of a bill collector. I submit—is that the best sort of public relations? Merchandising gives the utility better opportunity to know its customers. It brings the gas consumed to the company. The conversation opens on merchandise and after that the road to gas business is paved.

It is a generally acknowledged fact that the gas company has within its power the ability to create the desire to own the appliance and use gas. Therefore, isn't it logical that the gas company, as a creative force in the industry, will make it possible for the merchant engaged in the gas appliance business to do a larger and better business?

RAISING BUSINESS STANDARDS

The gas company should maintain prices. It is not necessary to sell merchandise at a loss, and no merchant takes exception to the kind of competition that sells at a merchandising profit. The gas company engaging in the appliance business is a healthy thread in the warp and woof of the cloth of business and an encouragement to merchants to sell quality merchandise. If, on the other hand, the gas company does not engage in the appliance business, it cannot expect the merchant to pay very much attention to quality and inevitably the business comes down to the low level of price. This condition reacts unfavorably to the

ECLIPSE
SAVE-A-LINE
Gives a Protective Film 5 TIMES THICKER than any Other!

Corrosion, the destructive and costly enemy of your pipe lines, is effectively balked by the thick protective coating made by one application of Eclipse Save-A-Line to the pipe surface.

This extra thick film ,reinforced with asbestos fibre, elastic and enduring, protects for many years against the corrosive action of soils caused by moisture, lime, alkali or electrolysis. The life of thousands of miles of pipe line has been extended by the protecting film of Save-A-Line.

It can be applied without heating and by inexperienced labor. Only one application necessary.

Let us know your requirements. We will be glad to send you sample and quote you prices. If you have any particular difficulties peculiar to your soil or climate, our Service Department is at your disposal.

A Few of the Larger Users of Save-A-Line

The Shell Company
Lone Star Gas Company
Humble Pipe Line Company
The Gulf Pipe Line Company
Associated Pipe Line Company
California Petroleum Co.

The Eclipse Paint & Mfg. Co.
Cleveland, Ohio, U. S. A.

Dallas, Denver — Detroit, Newark — Philadelphia, Pittsburgh — San Francisco, Charlotte, N. C.

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626 South Spring Street,
Los Angeles, California

Starting with the next monthly issue, you may send WESTERN GAS to the undersigned. Upon receipt of invoice, remittance will be sent to cover (1 year $2.00) or (3 years $5.00).

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Company .....

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Stockton Fire Brick Company

FIRE BRICK, INSULATING BRICK
HIGH TEMPERATURE CEMENT

High Grade Refractories
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PIPE

Montague-Wade Safety Water-Tube Boiler

Guaranteed more pounds pressure, horse-power for horse-power. Gets up full head of staem quicker—won't blow up—can be cleaned quickly—easily.
1 to 20 h. p. and larger.
Full details and prices upon application.

Montague pipe and other steel products have stood the test of time. You'll find it a good investment to use them.

Riveted Steel Pipe — **Welded Steel Pipe**
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Stacks — **Flumes**

MONTAGUE PIPE & STEEL CO
San Francisco California

gas company, for the public soon believes that gas is at fault.

I do not advocate a policy which is detrimental to the merchant engaged in the appliance business. What we need is more and better merchants in the business and all making a fair profit. I know that in cities where the gas company is in the appliance business the merchants do a better business and on a very profitable basis.

It is important to give deep thought to the subject of rates. I believe that the rate structure in most gas companies has been wrong. We have not given enough thought to the relationship between volume and rates. Certainly manufacturing and distribution costs are important to the sale of gas.

SALES DEPARTMENT SHOULD SELL

The idea of maintaining a sales organization with nothing to sell but service is preposterous, weakens the morale of the men engaged, stifles initiative, and results in individual incompetence. Service must be definitely attached to something concrete, otherwise it breeds disillusion and the very word becomes meaningless.

Public relations and sales are inseparable, for where a satisfactory sale has been made, public relations are assured. But a public relations department, without an appliance sales department, can do nothing tangible to cement proper relationship between consumer and utility.

A story illustrates the customer's reaction. A representative of a gas company not engaged in the sale of appliances called on the housewife to inspect applainces and see if the company service was satisfactory. He found everything in good condition and the housewife was favorably impressed by the attention given.

In a few weeks he called again and found all was satisfactory. A few weeks later he called again, but by this time the woman began to wonder what it was all about, so that evening she said to her husband: "There is a suspicious looking man who says he is from the gas company, who has called here three times in the last few weeks, but has nothing to sell, and I am beginning to doubt that he has any connection with the gas company at all."

If we attach service to the sale of appliances, it is fraught with meaning, for it carries responsibility and where responsibility reposes, action is necessary. To compromise a question so vital is nothing short of tragic, for it means financial loss to all concerned and instead of building up strong public relations, rends, tears and destroys.

NO PROGRESS THROUGH COMPROMISE

This world of ours, a world worth living in, was not built by compromise; rather by definite policy soundly laid, and strong vigorous plans conceived and carried to definite conclusion. Politics at times plays its part in the affairs of men, but strong, constructive statesmanship eventually shapes the destiny of business as well as nations.

The gas company does not delegate its financing, its engineering, its distribution, its accounting problems to outside sources. Is it, therefore logical to delegate its sales work to sources over which it has no control?

The chain of a gas company's success is only as strong as its weakest link, and at the present time, the link that needs strengthening is the selling link. The gas company to successfully progress must have complete control of its appliance sales.

The problems facing our industry are not difficult of solution; they are really only incidental to the development of our business and especially characterize one of our great age, because of the tendency to complacency.

We have been prone to neglect the vital element of intensive sales, because of the many problems of manufacture, distribution, and too, the readjustment of our policies and methods of doing business. Our engineering and operating departments are well organized; in the main they are in the charge of competent executives and staffs and research work is constantly going on.

RECOGNIZE SALES DEPARTMENTS

Our great need now is recognition of sales departments by the financial interests, the choice of most able men to direct sales departments and the employment of the best types of solesmen properly compensated. It is important that we recognize the fact that appliances and gas are inseparable—that they are one and the same in so far as practical results are concerned—and the necessity of purchasing only the best appliances and educating the public to the economic advantage of the most modern equipment.

There has been considerable talk about creating one or two great companies whose relationship to our industry would be on a plane with the General Electric and Westinghouse in the electric field; but in my thought, that is not in the slightest degree necessary. There are enough strong, stable manufacturers of high standard gas appliances in the United States who will continue to provide better appliances, so long as the gas companies encourage their efforts. Such cooperation will create an incentive to the appliance manufacturer to engage in greater research and development work.

It is obvious that appliances should be sold at a merchandising profit to the end that the sales department will be self-sustaining. Advertising has its place and the advertising department and sales department should work very closely together, with the object of creating the right public relation, as well as assisting the salesman in selling the best type of appliance.

A. G. A. LABORATORY WILL HELP

The American Gas Association Laboratory is well organized, well equipped and the personnel competent to carry on the necessary research and testing work. This recent adjunct to our industry will eventually be of inestimable value, and again brings most forcibly to our attention the importance of gas appliances to our busines.

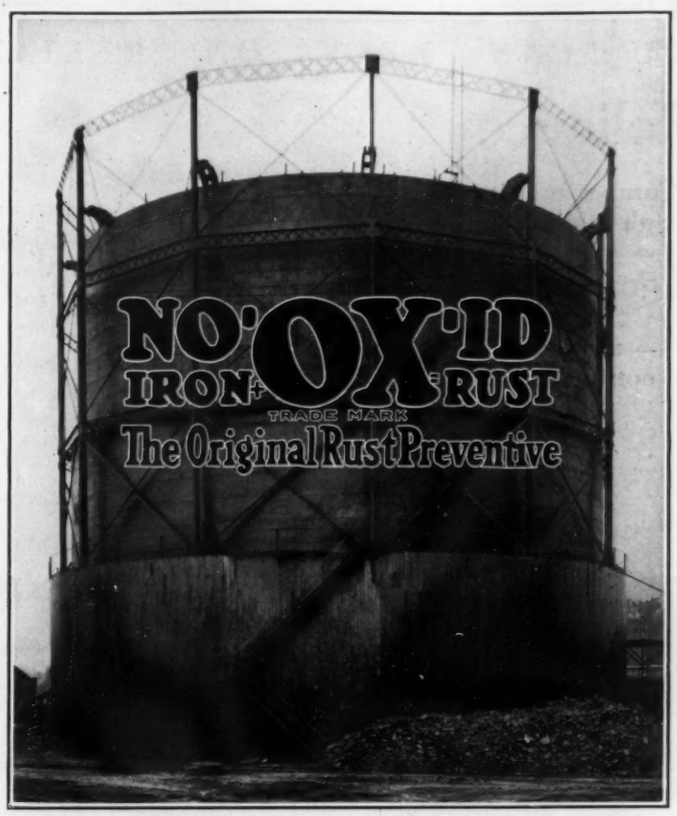
I am optimistic as to the future of the gas industry. We have real ability within our ranks. We are adjusting ourselves to the necessities of the times. There is real need for our product, but we cannot in fairness to ourselves or the public, ask other agencies to assume our responsibilities. We may cooperate with other agencies, assist in co-ordinating the work—but the leadership rests with the gas company and cannot be evaded.

NEW BOOK ON FUELS AND THEIR COMBUSTION

"Fuels and Their Combustion" is a new work dealing in an up-to-date manner with coal, lignite, petroleum, shale oil, natural gas, wood charcoal, tan-bark, briquets, and colloidal fuel. Its authors are Robert T. Haslam, Professor of Chemical Engineering, Massachusetts Institute of Technology, and Robert P. Russell, Assistant Professor of Chemical Engineering at the Institute.

W. H. BARTON MAKING GAS SURVEY IN CUBA; MIAMI

William H. Barton, office manager of the Portland Gas and Coke Company, is at present making a survey of the gas departments of the Electric Bond and Share Company in Havana, Cuba, and Miama, Florida, with the object of increasing business. His stay away from Portland is only temporary.



In Uses Innumerable

This gas holder of the Northern States Power Company of La Crosse, Wis., was coated with NO-OX-ID following results obtained from a four year test.

From needles and watch springs to pipe lines and gas holders, NO-OX-ID has been found the most effective rust preventive.

In government, railway, and industrial service where men want real rust prevention, they turn to NO-OX-ID.

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FLANGES MFG'D TO SPECIFICATIONS

YOU CAN RELY ON RELIANCE

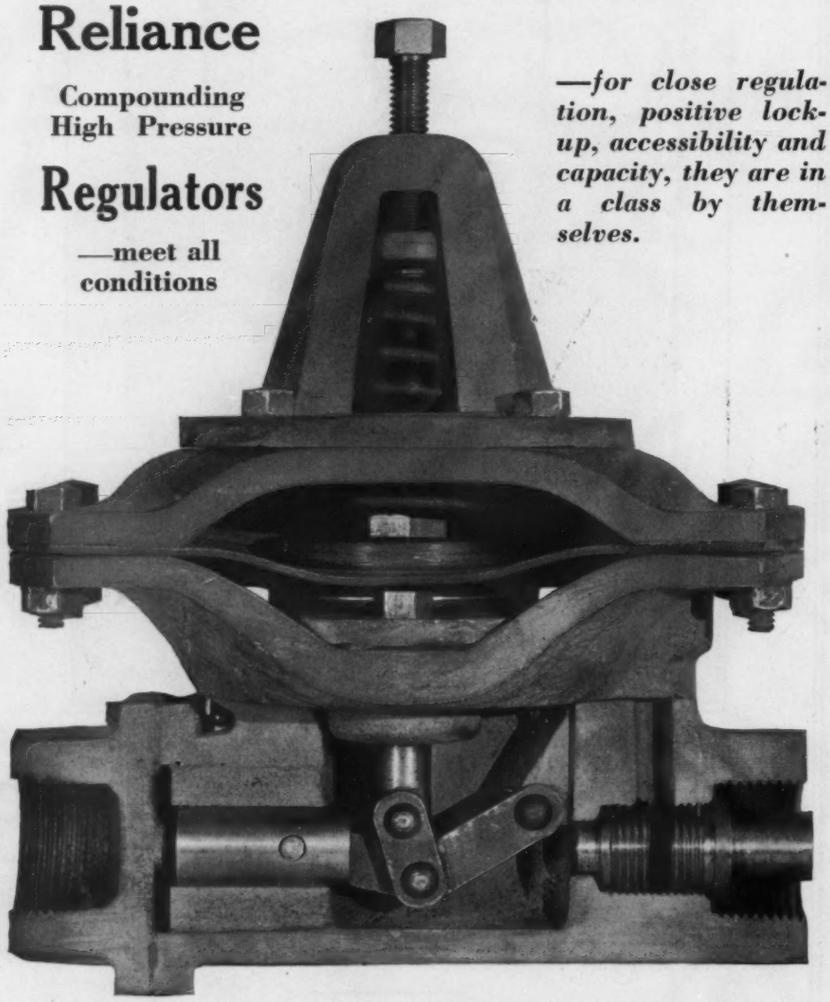
Reliance

Compounding High Pressure

Regulators

—meet all conditions

—for close regulation, positive lock-up, accessibility and capacity, they are in a class by themselves.



Reliance Manufacturing Co.

Pasadena, California

THERE IS A

PABCO PRODUCT

TO PROTECT

EVERY SURFACE

The Paraffine Companies, Inc.

San Francisco Oakland Los Angeles Seattle Portland

An Opportunity

(Continued from Page 30)

ledger accounts, in listening to complaints, in digging ditches, in repairing meters, in managing these great enterprises. Those who become discouraged and have let down for these reasons have possibly looked for a Utopian existence.

It takes an indomitable spirit at times to maintain one's faith in a work and not become too cynical when the opposite of appreciation is received for one's efforts; when one has done his best to serve and only criticism is received; when politicians, in down utterly in our opportunity to really appreciate and express our appreciation. Too often a mother's reward is limited to seeing her sons and daughters grow up to be an honor to her and, sometimes, even after giving her best efforts, this reward is denied her.

Probably 80 per cent of those actually using the gas service supplied are the women of our households. Good service is a necessity in the preparation of the meals. It is essential to the making of that prize cake or pie, or those muffins that keep men home, or that roast our wives take such special pride in preparing. It is mainly to the housewives that the service is important, and to them the bill is presented.

As your worthy president has so effectively stressed, it is well that we consult our wives in determining what will best supply the needs, what is the best service, and what will create the highest standard of good public relations.

NO BOUNDS TO UTILITY SERVICE

The men and women of the great utilities have an especial opportunity to carry on, in a definite and effective way, a real service to the state and nation; this, in addition to the great service they are performing as part of their utility business.

Freed from cut-throat competition, from any necessity for overstating their wares, from holding out trade secrets, from bargaining with their consumers—dealing with a business that demands consistent, continuous service—they are in a better position to deal frankly with their consumers. Dealing more directly with the homes, they have a better chance to spread the gospel of honesty in business than could be accomplished by pages of advertising or hundreds of service clubs or hours of preaching. Having a record for honesty and courtesy in its dealings, employees can be proud of their firm and its standing. They will become better citizens as a result. The consistent practice, day by day, of courtesy and honesty in business relations with the women customers will have its influence in spreading the spirit of the Golden Rule in business, both to this generation and to the boys and girls in the homes you serve—the business men and women of tomorrow.

I have heard of the reaction that a credit for a fast meter has had on a customer when a note advising of the adjustment comes as a surprise after a routine test. I have noticed the feeling of pleasure at a special act of courtesy or honesty. The incident may be related at the ladies' club or over the back fence, or at the men's club or at the 19th hole, but it tends to make people think more of the utility and to raise the standard of their own business dealings.

BUILDING BUSINESS ETHICS

We, in the West, have a special tradition to maintain. Even in the rough and ready days of '49 there existed a generally higher standard of business ethics than prevailed in

many other countries. A higher standard still exists. The man whose word is as good as his bond has not passed away.

Compare this with the principles upon which business is conducted in the Far Eastern countries, where intrigue, suspicion, dishonesty and sharp practice are the rule rather than the exception. Even in this country of ours there would appear to be more of human kindness and consideration in the business world here in the West than on the Eastern Seaboard. Let us fully accept our opportunity of maintaining and building up on this western coast the practical application of the ideal of business ethics. If we do, business standards will be raised to a higher plane, public service employment will become a more highly honored profession, the nation will be rendered a worth while service.

Utility men and women have an opportunity to play a leading part in this service to state and nation.

TAR

(Continued from Page 34)

than for hard surface pavements. This will be readily appreciated when the cost of $475 per mile for Gasco Road Binder No. 1 is compared with the cost of $13,500 per mile for bitulithic paving.

The tar has been prepared not alone for cold or hot application by sprinkling (in which shape it is known as Gasco Road Binder No. 1) but, by further distillation, two other grades have been prepared, known respectively as Gasco Road Binder No. 2 and No. 3. No. 2 only differs from the No. 1 in that it does not contain so much volatile matter and consequently attains full hardness as soon as the surface cools and may thus be used in the building of penetrated macadam roads under any standard methods for this type of construction. It can also be used in covering wooden or concrete bridge floors. Binder No. 3 is used for cold patching and repairing bitulithic macadam or asphalt pavements which have developed holes or ruts. In placing material it is only necessary to tamp it into place, smoothing it off and paint it with a seal coat of the binder, sprinkling a little dry sand or screenings over the surface. The traffic will soon smooth the surface to an even level.

One of the interesting features of the use of tar for such roads is the wonderful non-skid qualities of the road so treated as compared with bitulithic roads or oiled roads.

The experimental work in Multnomah County was largely made successful by the personal supervision of Professor Graf. Mr. Wardale, assistant superintendent of the Portland Gas and Coke Company's plant, took care of the work of the State Highway Commission in Eastern Oregon.

FURTHER EXPERIMENTATION

Not content with working up tar for these purposes the company's engineers are seeking to develop other uses for this tar, such as for roofing and the manufacture of roofing felt, for which purposes the material is admirably adapted. Additional possible uses are water-proofing buildings and manufacturing paints.

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KEY Graphite Paste

District Governor Installation

(Continued from Page 29)

There are many other mechanical means of loading the lever arm or admitting pressure on the diaphragms, such as admitting high pressure gas to diaphragm chamber, or loading with water a tank suspended on the rod of the lever arm. Such devices all require the governor to be located at a convenient station, as they are only successful when given periodic inspection.

In general distribution practice, governors with standard equipment for operating will be found satisfactory.

Control valves for a governor on the inlet and outlet are of the greatest importance. Every effort should be made to secure tight shut-off. The valves may all be located within the vault; in fact this is by far the best design as the valves are then quite convenient. In a well designed installation there is nothing of a serious nature to occur in the vault that would warrant the placing of the valves outside the vaults.

On all high pressure installations a very effective shut-off can be had by using the Nordstrum lubricated stop-cock. This fitting is to be had in any size up to 16", and on sizes over 10" are operated by quadrant and pinion. Gate valves will serve on low pressure, but for tight shut-off these should always be installed in the vertical rise of a pipe.

ASSEMBLING THE CONNECTIONS

Welding will be found a very convenient means of assembling the governor connections. Even brazing may be adapted, particularly where short nipples with flanged ends are required, as brazing is done at low temperatures and will not destroy the alignment of flanges. Van Stone flanges are a convenience as they allow for ease of connections on account of flexibility. They are recommended for use on all high pressure flange connections for strength and insured tight joints.

The governor diaphragm control, or static pressure line, should be taken from a point outside the vault and preferably well along on the down-stream or low side of the governor. This manner of connection overcomes the influence or effect of all the bends in the governor connections.

VAULTS SHOULD BE VENTED

Every vault should be vented. A combination vent and gauge box post can be designed to suit all situations, and at the same time have a very pleasing appearance on the street. Two 3" vent pipes are sufficient for the ordinary vault, one pipe to extend from the ceiling of the vault to the gauge box on the vent standard; this line will serve as a duct for the gauge lines, as well as a vent; the other pipe extends from the bottom of the vault to the base of the vent standard, where it is open to the atmosphere.

An ornamental gauge post and vent pipe can be made from a piece of 4" standard pipe, the base a piece of casting fitting over the pipe as a skirt, the top of the skirt to have an opening to the atmosphere. On top of the stand pipe a cast iron box is screwed in place, this box to take the recording gauge. The height of the completed standard should not exceed 6 ft., in order to be symmetric in design.

ONE CIRCULATION DEVICE

A vault that is at all times damp should be equipped with mechanical ventilation. This can be designed to suit. Such a fan

now in use is mounted on a shaft with a turbine and operated by same. The force is a small ⅜" line of gas from the high pressure side of the governor through the turbine, discharging into the low pressure outlet pipe. The outlet of the fan is connected to the lower vent. The control is a piston valve operated by the governor lever. If the governor opens, the lever moves the piston valve, gas flows through the turbine and operates the fan, circulation continuing until the governor automatically closes.

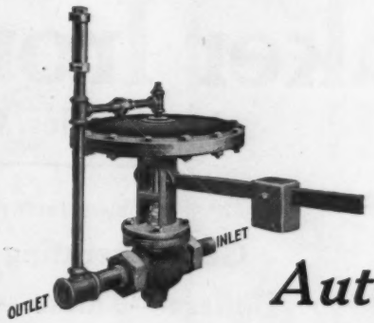
It is often desired to keep a record on the operation of a governor, for either the time of the day governor is in operation, or the quantity of gas passed by the governor. This is accomplished by installing an orifice disc in a flange at either side of the governor. By recording the differential on a gauge chart the time governor is in operation is registered. If the orifice is calibrated and placed some distance from the governor, the amount of gas passed may be calculated. In order to secure accurate reading with an orifice meter, high differential is essential. A small orifice is therefore desired for all low loads. On high pressure, outlet of governor to overcome the loss in pressure due to the orifice disc when placed down-stream, the static line from the governor must be tapped to the outlet pipe beyond the orifice setting. If placed up-stream the differential will not have any effect on the governor operation; however, down-stream is a desirable location, as then the orifice pressure serves also to record pressure of the governor. On low pressure governors the up-stream location for an orifice meter is the only choice.

REGULAR INSPECTION NEEDED

All governors require regular inspection, and this should be provided. Freedom of regulator to move should be observed. Control valves on inlet and outlet should be closed and opened. The dust pot should be cleaned. At fixed intervals the valve seats of the governor should be examined. Recording gauges should be tested by check against a water column or test gauge.

Use of governors in the distribution of gas and control of pressures is not alone a convenience, but in this day of wide-spread distribution areas the governor has reached the point where it is a necessity. Low pressure distribution is the desirable system. Even though all gas is dispatched from the works via high pressure transmission lines, if it is at all possible to locate district governors so as to maintain uniform low pressure, the system will be found to be most desirable. A few district governors replace all the individual service regulators necessary on a high pressure system. Leakage will be much reduced, and if any low pressure gas is delivered from the gas works such gas will supply the off peak gas in the area served by the governors, providing the governors are set to a pressure below the works' pressure, at such hours. This means a saving, as high pressure gas carries a pumping charge upwards to two cents per thousand higher than low pressure gas.

Because of its merit and satisfactory service the district governor is receiving much attention in distribution design and therefore the few ideas expressed above may prove of interest.



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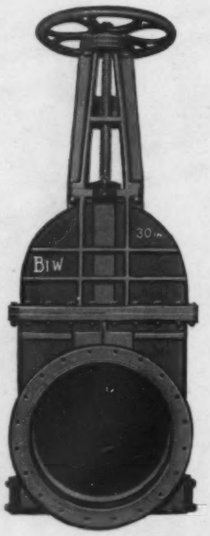

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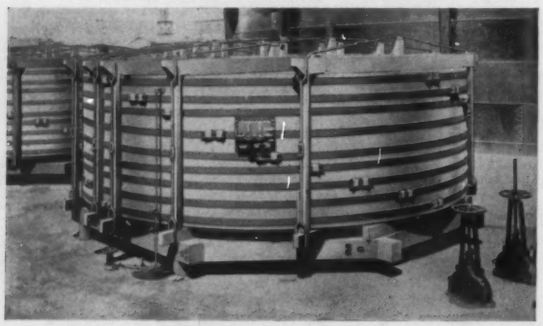

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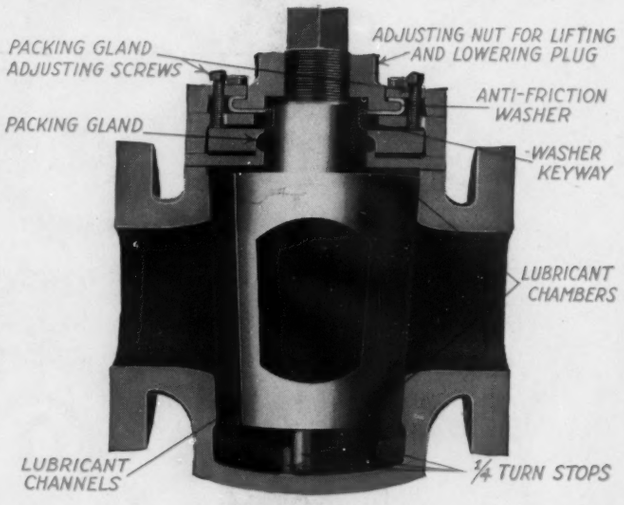

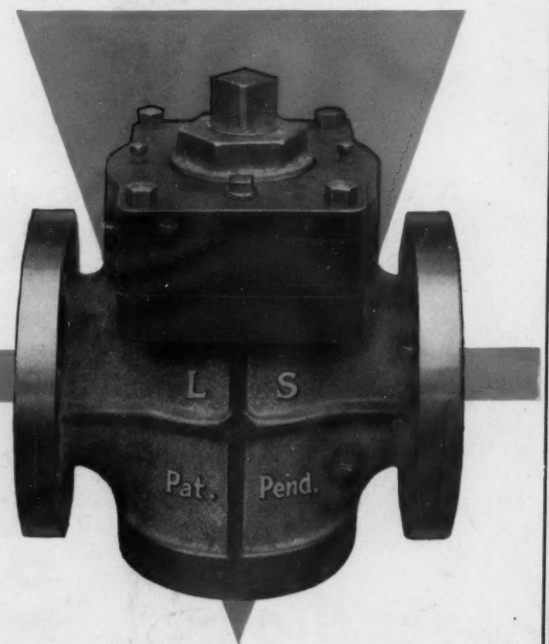

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